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Basic salts, particularly the "or" salts of copper. J. V. DUMAS, R. TUNARIS AND A. OULIC. *Spisy vybraných přírodních látek* 1929, No. 113, 17-20; *Collection Chimique, Chem. Communications* 2, 261 (1930).—Salts of the formula $[M(M(OH)_2)_2]X_2$ ("or" salts) are pptd. on mixing the solns of the simple salts with the hydroxide, oxide, carbonate, acetate or nitrate of the metals. X_2 is the anion, M the 2 metals, which may be identical or different. The "or" salts of carbonate always contain some H_2CO_3 . Very dil. solns. and a temp. of (20-30°) favor pptn. of the "or" salt instead of the normal salt. The following "heavy" salts of Cu, (Cu- $[HO]_2Cu)_2X_2$ were pptd.: Cl, $0.6H_2O-1H_2O$; Br, 1, $9H_2O$; SO₄, $1H_2O$; (NO₃)₂, (NO₃)₄; CO₃, (CO₃)₂, $1H_2O$; (OH)₂; CrO₄, 1, $1H_2O$; also a thiosulfate (Cu(OH)₂- $CuH_2(S_2O_3)(OH)_2$), Cu $2H_2O$. Salts of Ni, Co and Cd were pptd. A. N. Hina

CH

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A qualitative color reaction for magnesium. J. V. Dineen and Ann Orlic
(Chem. List 24, 192-3(1930)).—o,p-Dithiodicybenzoylamine gives a blue
coloration with salts of Mg in an alk. medium. The color is not a complex of Mg or a
lake, but an absorption of the dye upon the Mg(OH)₂. The color is not up. Ni salts
give an identical color, while Co salts give a different shade of the same color. The
dye (0.5 g) is dissolved in 100 cc. of a 1% alk. soln., the dye is very insol. in neutral
water. One drop of the dye soln. is added to an unknown Mg soln. and 2 N NaOH is
added. The alk. dye soln. is violet, upon absorption by the Mg(OH)₂ a distinct blue color

appears. It will detect 0.00002 mg Mg. This color yellow A in a 0.01% soln. is pale
orange. Upon absorption by Mg(OH)₂ it becomes rose and will detect 0.00002 mg Mg
per cc. Tubul orange B (28), benzoylamine 4H(Cl) 10, and blue 15 and diamine
pale blue 16 (10) give only vague color changes. L. V. Dineen

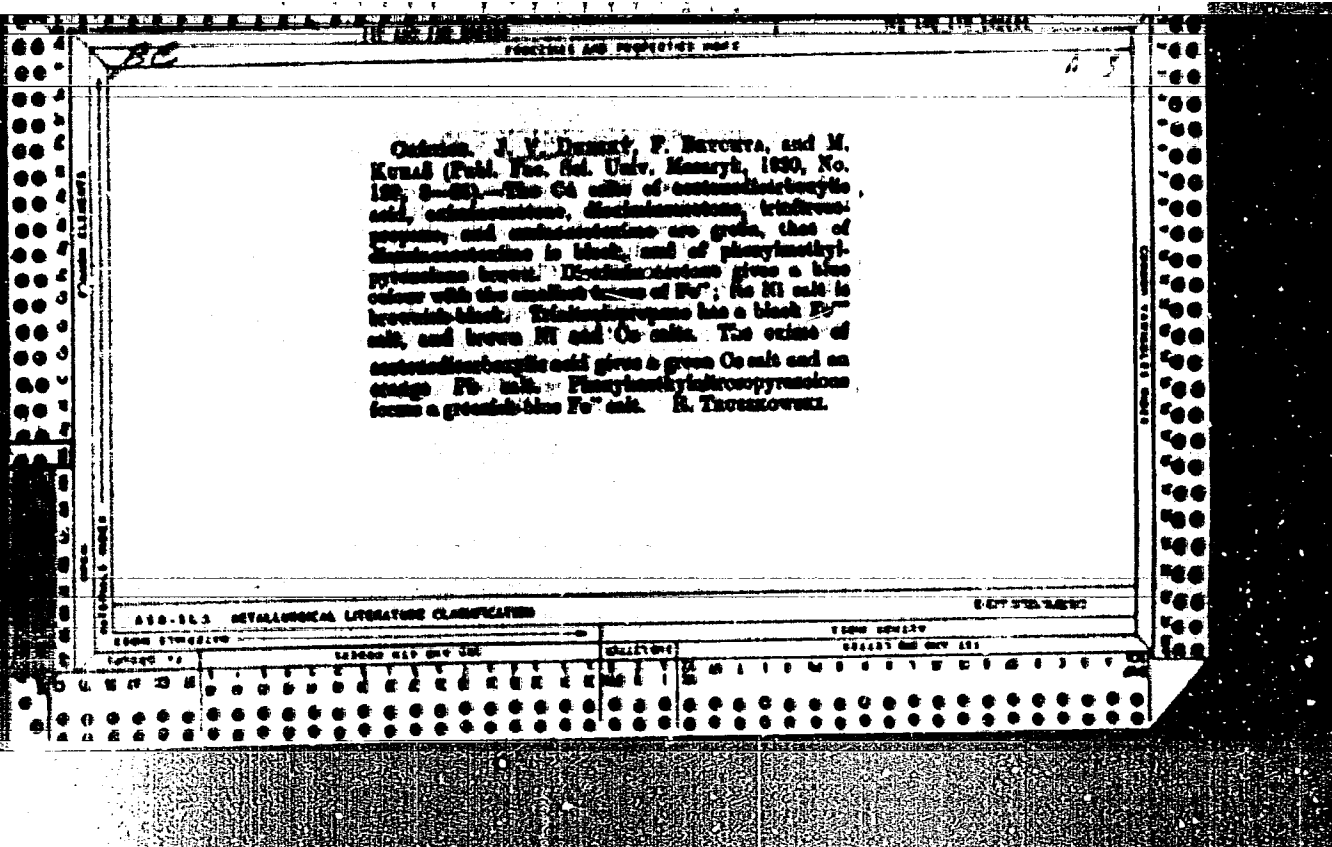
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A contribution to the study of the formation of salts with glycine. J. V. Drenth and A. RABAN. *Spitz syntheses physikalischen Fakultät Marburg* (Note No. 122, 3-UN(1671); G. C. A. 24, 4728). Glycine (I) 7.5 g. in 100 cc. H₂O was treated with 4.07 g. ZnO at 50-60°. Filtered and dried, it yielded 2.8 g. (NH₄CN₂COO)₂Zn + H₂O (II). II is a white, crys. anhydrous substance, sol. in H₂O 1:10, turns yellow at 240-260°, decomposes at 310°, hydrolyzes at 60-70° in H₂O with the formation of Zn(OH)₂. II was also prep. by treating I with ZnCl₂ or Zn(OH)₂. II could not be prep. by treating NH₄CH₂COOAg with ZnCl₂. The mother liquor from II was further evap. at 60°, yielding 2.8 g. of a white crys. mass (NH₄CH₂COO)₂Zn.3 glycine + H₂O (III). III melts with decompos. at 245°, is sol. in H₂O 1:6 and anhydrous; the salts are neutral. Aq. solns. of III crystallize, forming first I and then III in the last fractions. III was also prep. by treating 4.07 g. ZnO in 100 cc. H₂O with glycine (16 g.) and evap. until crystals began to appear. ZnCl₂ 3 glycine (IV) was prep. by dissolving 8 g. glycine in 20 cc. H₂O, adding 1.75 g. anhyd. ZnCl₂ in 5 cc. H₂O and permitting free crystals to come for 10 days. The yield was 1.9 g. an. (with decompos.) 225°, hygroscopic, acid to litmus and having a bitter taste. ZnCl₂ 3 glycine + 2H₂O was prep. by treating 6.81 g. anhyd. ZnCl₂ in 3 cc. H₂O with 7.5 g. glycine in 18 cc. hot H₂O. The filtered soln. immediately gave glossy crystals an. 100° and decompos. at 225°. ZnCl₂ 3 glycine + 2H₂O was prep. by mixing 2.26 g. ZnCl₂ and 2.26 g. glycine in 7 cc. H₂O. After standing, crystals (transparent) appeared; they an. 65°. ZnSO₄ glycine + 2H₂O (11.6 g.) was prep. from 11.6 g. ZnSO₄·7H₂O and 3 g. glycine in 10 cc. H₂O by allowing crystals to proceed for 16 days. The white transparent crystals lose 4 H₂O at 50-60° and leave ZnCl₂ glycine after drying at 50-120°. The crystals are stable in air, anhydrous (an. 65°) and decompos. at 220°. (NH₄

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OVER

$\text{CH}_3\text{COO})_2\text{Cu} \cdot \text{CuCl}_2 + \text{H}_2\text{O}$ (V) was prep'd. from 1.71 g. $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ and 1.5 g. glyoxal in 5 cc. H_2O . The soln. was filtered and allowed to crystallize for 7 days to yield 0.75 g. dry V. V is a powdery blue mass, stable in air, nonhygroscopic, bitter to taste, turning green at 120° and black with decompos. at 193° . $\text{HCl}(\text{NH}_4\text{CH}_2\text{COOH})_2\text{Cu} \cdot \text{CuCl}_2$ (VI) was prep'd. from 2.5 g. $(\text{NH}_4\text{CH}_2\text{COOH})_2\text{Cu} \cdot \text{H}_2\text{O}$ and 1.7 g. $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ in 31 cc. 5% HCl . After a week, the green and blue crystals were removed. The filtrate yielded 0.8 g. dark green-black crystals. VI is stable in air, nonhygroscopic, acid in reaction, bitter in taste and decomposes at 193° . There was no H_2O of crystn. percent 2 $(\text{HCl}(\text{NH}_4\text{CH}_2\text{COOH})_2\text{Cu} \cdot \text{CuCl}_2 + \text{H}_2\text{O})$ was prep'd. by dissolving 1.7 g. $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ and 2.2 g. $\text{HCl}(\text{NH}_4\text{CH}_2\text{COOH})_2$ in 5 cc. H_2O ; upon cooling, a gray-green soln. formed, from which lemon-yellow leaflets crystd. (yield = 1 g.). The crystals were hygroscopic, very sol. in H_2O , acid in reaction, bitter to the taste, turning brown at 78° , m. 96° and decompos. at 120° . $(\text{NH}_4\text{CH}_2\text{COO})_2\text{Cu} \cdot \text{CuCl}_2 + \text{H}_2\text{O}$ (VII) was formed by dissolving 2.3 g. $(\text{NH}_4\text{CH}_2\text{COO})_2\text{Cu} + \text{H}_2\text{O}$ and 11 g. $\text{CuCl}_2 \cdot 2\text{H}_2\text{O}$ in 10 cc. H_2O , cooling, filtering and drying. After 30 days blue crystals of VII appeared; the yield was 3 g. At 220° VII decompos.; drying over P_2O_5 removed 1 mol. H_2O ; the remaining 2 mols. H_2O cannot be removed without decompos. the substance. The attempts to prep. soln. products of 2 $\text{HCl}(\text{NH}_4\text{CH}_2\text{COOH})_2$ with NiCl_2 , COCl_2 and SnCl_4 were not successful. The hydrolytic observations on Zn glyoxal by Curtius were examined critically. F. M.



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The contamination of zinc nitrate preparations with basic salts. J. V. ILIUSKIN AND M. NERDANOVA. *Chem. Listy* 25, 275-6 (1931).—Five hundred g. $Zn(NO_3)_2 \cdot 6H_2O$ was dissolved in 750 cc. H_2O and yielded 3 g. of an insol. white residue. The prepn. of Harn and March had the compn. $Zn(NO_3)_2 \cdot 5Zn(OH)_2 \cdot 2H_2O$; m. p. 190° . Fused salts of Harn left a residue of the compn. $Zn(NO_3)_2 \cdot 5Zn(OH)_2 \cdot 2H_2O$. Prepn. from Kahlbaum left no residue. Washing the insol. residues transforms them into the more basic salts $Zn(NO_3)_2 \cdot 5Zn(OH)_2 \cdot 2H_2O$ and $Zn(NO_3)_2 \cdot 5Zn(OH)_2 \cdot H_2O$. FRANK MARSH

410-114 METALLURGICAL LITERATURE CLASSIFICATION

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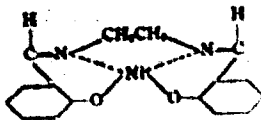
117 419 140 110000

ANALYSIS AND PROPERTIES	
Salts of glycine. J. V. DEBART and A. KARAS (Coll. Czech. Chem. COMM., 1931, 2, 133-134).— Acetone solutions of the zinc salt of glycine deposit 21% of the salt as hydrous zinc when heated at 65– 70°, and 28% when heated during 2 hrs. Further precipitation occurs when the filtrate is boiled with sodium carbonate solution. Precipitation of zinc hydroxide in the filtered state is prevented by addition of glycine. The following salts are described: (Zn) — glycine: C₁₂H₁₆NH₂O₄, decomp. 245°; C₁₂H₁₄NH₂O₄, m. p. 62°, decomp. 130°; C₁₂H₁₂N₂O₄, decomp. 130°; CuCl₂.2H₂O.2NH₂CH₂COOH, m. p. 62°, decomp. 130°. J. D. A. JOHNSON.	H. 3
METALLURGICAL LITERATURE CLASSIFICATION	
SEARCHED INDEXED SERIALIZED FILED	MAR 1932 U.S. DEPT. OF COMMERCE BUREAU OF MINES

The copper salts of quinaldic acid. J. V. Duguet and A. Chac. *Comptes Rendus Acad. Sci. Paris*, 248, 466-470 (1959).—The 2 carboxyl groups of quinaldic acid have different properties because of the basic N adjacent to the one. The normal Cu salt heated with HNO_3 (d. 1.2) loses half of the Cu, while the remaining half is firmly bound and can be removed only by more energetic means. Normal Cu salt, RCuH_2O (R = quinaldic acid), from the acid or its neutral Na and K salts and $(\text{AcO})_2\text{Cu}$. If five alkali is present there form in succession an indefinite basic salt, the normal salt and a CuK salt. The normal salt is light blue, microcryst., browns at 270° , retains H_2O at 130° , is insol. in H_2O , EtOH , Et_2O , slightly sol. in AcOH , moderately in 2 M NaOH . Action of concd. NH_4OH gives $\text{RCuNH}_2\text{H}_2\text{O}$, deep blue, loses 2 H_2O at 100° . Acid Cu salt, $\text{CuR}_2\text{H}_2\text{O}$, best made by boiling the normal salt with HNO_3 (d. 1.2), sea-blue crystals or light blue powder, insol. in EtOH and Et_2O , slightly sol. in H_2O , dissolves slowly in 2 N NaOH or concd. HNO_3 , easily in NH_4OH , decomps. 207° . $\text{CuR}_2\text{Na}_2\text{H}_2\text{O}$ from the acid salt and 0.1 N NaOH , deep violet crystals, easily sol. in H_2O , decomps. 263° . The Cu is not pptd. by boiling with alkaline or KI . Boiling with $\text{K}_4\text{Fe}(\text{CN})_6$ and AcOH gives a ppt. (It is also pptd. by H_2S , loses 6 H_2O at 100° , 6 H_2O at 130° with decomps. $\text{CuR}_2\text{K}_2\text{H}_2\text{O}$ resembles the Na salt. $\text{CuR}_2\text{NH}_4\text{H}_2\text{O}$ from the acid Cu salt and concd.

NH_4OH , light blue crystals, difficultly sol. in cold H_2O , easily in hot, insol. in EtOH , blackens at 200° .
ALFRED HOFFMAN

inner complex salts of copper and nickel from the product of the condensation of *n*-hydroxybenzylaldehyde with ethylenediamine. J. V. BUNNETT AND A. SOROKA. *Collection Czechoslov. Chem. Comm.* 2, 545-6 (1931); *J. C. N. R.* 25, 2131. $\text{C}_{10}\text{H}_{12}\text{O}_2\text{N}_2$ (I) and 10% $\text{CaCl}_2(\text{NH}_4)_2$ (II) in EtOH give yellowish crystals of $\text{HOCH}_2\text{CH}_2\text{NCH}_2\text{CH}_2\text{NCH}_2\text{CH}_2\text{OH}$. The reaction of I in EtOH with the calcd. quantities of II and of a Ni or a Cu salt gives products which are inner complex salts having the structure



Ni salt, orange-yellow, m. 320° (decomp.); Cu salt, gray-green, m. 322° (decomp.).
LOUISE KULLBY

C.A

7

Analytical study of the reactions of oximes. I. V. Zhurav, E. N. Barysheva and M. K. Kuch. *Pub. for the USSR Ministry of Chemical Industry, No. 120, 1954, 11, 12, 13, 14.*
The following are some of the oximes and their reactions studied in this work. Acetone dioxime acid served for the prepn. of diaminooxime and triaminooxime, and for this reason its reactions were studied. It gave a light green, cryst. Cu^{++} salt. Diaminoacetone gave a green-black, basic Cu^{++} salt. Triaminooxime gave a dark green, amorphous Cu^{++} salt and a brown-black Ni salt. It also gave a blue coloration with Fe^{++} salts, a very sensitive reaction recommended as a delicate test for Fe^{++} ions. Triaminopropane gave an explosive, green-brown Cu^{++} salt, a violet-black to black Fe^{++} salt, a dark brown Co salt and a yellow-brown to red-brown Ni salt. The oxime of acetonecarboxylic acid gave a light green Co salt and an orange-yellow Pb salt. Aminooxime formed a light green Cu salt. Diaminoacetone gave a microcryst. black Cu^{++} salt, the compn. of which was not detd. Phenylmethyl pyrazolone gave a yellowish-brown Cu^{++} salt. Phenylmethylhydrazopyrazolone yielded a green-blue Fe^{++} salt, while the Ni , Co and Cu^{++} salts were not obtained pure. Structural formulas for the above compounds and salts are given. Substituted oximes and the oxime of salicylamide were not obtained in a pure state, and for this reason their salts were not prepd. Details of the prepn. of the starting compds. and of the prepn. of the various salts, as well as a table describing the above salts and salts which some of the compds. gave with metals other than those mentioned above, are given. E. H. S.

ADV. CHEM. METALLURGICAL LITERATURE CLASSIFICATION

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RECEIVED AND PROPERTY NO.	
Complex combinations of cobalt with diphenylethylenediamine. J. V. D'ANIEL AND A. LANGIER. <i>Spicy rydland Pionomachon Fehdion Masorylly</i> (1921) 144(1921).—$\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ (1.5 g.) and diphenylethylenediamine (2.3 g.) dissolved in 35 cc. H_2O were treated with 9.7 cc. concd. HCl and 2.6 cc. H_2O, reduced on a water bath, and aerated with air. After 1 hr. of degassing, concd. HCl (5.8 cc.) was added, and the refluxing was continued for 2.5 hrs. longer. The ppt. was collected on a filter, it contained cobaltous and green-blue substances. The white substance was insol. in H_2O, the green substance dissolved, forming an orange-red soln. from which red lacy crystals formed. The prepn. $(\text{CH}_2\text{NH}(\text{C}_6\text{H}_5))_2\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$ did not form. With similar procedures, it was not possible to form the substances: 1. $[(\text{CH}_2\text{NH}(\text{C}_6\text{H}_5))_2\text{CoCl}_2]_2\text{Cl}$, 1.3 $[(\text{CH}_2\text{NH}(\text{C}_6\text{H}_5))_2\text{CoCl}_2]\text{Cl} \cdot \text{HCl} \cdot \text{H}_2\text{O}$ and 1.0 $[(\text{CH}_2\text{NH}(\text{C}_6\text{H}_5))_2\text{CoCl}_2]\text{Cl}$. The salts prepd. by Dupon (C. A. 24, 2101) were found to be salts of diphenylethylenediamine, HCl and CoCl_2 or CoCl_3 and not complex combinations. Also in <i>Collection Czechoslov. Chem. Communications</i> 6, 192-9(1932). FRANK MARRON	6
ASB-31.4 METALLURGICAL LITERATURE CLASSIFICATION	
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Influence of the vicinity of amino-groups on the formation of salts of α -diketonates (succinimide-diketonates). J. V. Derzky and A. Guld (Ost. Chem. Zentr. Comm., 1933, 4, 381-384). Original

Abstract: Addition of an aq. solution of 3 mole. of succinimide-diketonate (II), $(NH_2)_2C(OH)C(OH)C(OH)C(OH)_2$, to a solution of $CaCl_2$ in aq. NH_3 gives the salt $Ca(O_2CCH_2CH_2C(OH)_2)_2$ (III), decomp. about 200°, which is completely and only in 4 mole. of HCl (0-12%), and is thereby converted (mainly) into the tetramine salt $Ca(O_2CCH_2CH_2C(OH)_2)_2 \cdot 4NH_3$ (IV), decomp. explosively at about 62° corresponding dicarboxylic acid (V), decomp. explosively

at about 125°, which is also prepared from (I) (3 mole.) and $CaCl_2$ (1 mol.) in dil. NH_3 . The conversion of (II) into (III) is considered to occur by way of an unstable intermediate formed by addition of (II) to the NH_2 groups of (I). The intermediate of (I) (3 mole.) and $CaCl_2$ (1 mol.) in dil. NH_3 decomp. about 125° (slight explosion) and an excess of (II) gives the salt $Ca(O_2CCH_2CH_2C(OH)_2)_2$ (III), decomp. explosively about 62° also formed in equal amount when (I) is dissolved in NH_3 and $CaCl_2$ is added. (I) is converted by $AgNO_3$ into (IV), $Ca(O_2CCH_2CH_2C(OH)_2)_2 \cdot 4AgNO_3$, which decomp. about 125° (slight explosion). Addition of aq. NH_3 to an aq. solution of (IV) yields a complex $Ca(O_2CCH_2CH_2C(OH)_2)_2 \cdot 4NH_3$ (V), decomp. about 125° (slight explosion), also formed from an equimol. mixture of (I) and $CaCl_2$ (or $CaSO_4$) in H_2O and aq. NH_3 , in which the $NO-Cu-ON$ group probably occurs. The proximity of the NH_2 to the OH groups should suppress the basic function of the latter, thereby causing them to react as acids; it should, therefore, be possible to prepare complexes

REG-160 METALLURGICAL LITERATURE CLASSIFICATION		FORM 100-100	
SYMBOL	SYMBOL	SYMBOL	SYMBOL
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17	18	19	20
21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

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Oxidation of santoninamide. J. V. DUBOIS AND J. TUTHILL. Chem. Abstr. B, 1-2 (in English 3)(1933).—The red coloration of santoninamide (II) with $\text{CuCl}_2 \cdot (\text{HCl})$, followed by
by intermediate formation of complex. of the general formula $\text{CuCl}_2 \cdot (\text{HCl})$, followed by
the final step. of the addn. compd. CuCl_2 . Simultaneously there is formed the compd.
 $\text{C}_{18}\text{H}_{16}\text{N}_2\text{O}_8$ which can be also prepd. by the oxidation of santoninamide with H_2O_2 or alc
I in HCl or neutral soln. The constitution of this compd. is explained by the formation
of a thio-1,2-dicarb N:C(OEt)₂:N:C(OEt)₂. S. m. 69-70.

JAROSLAV KČERA

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

FORM STATION

SOURCE NO.

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REMARKS

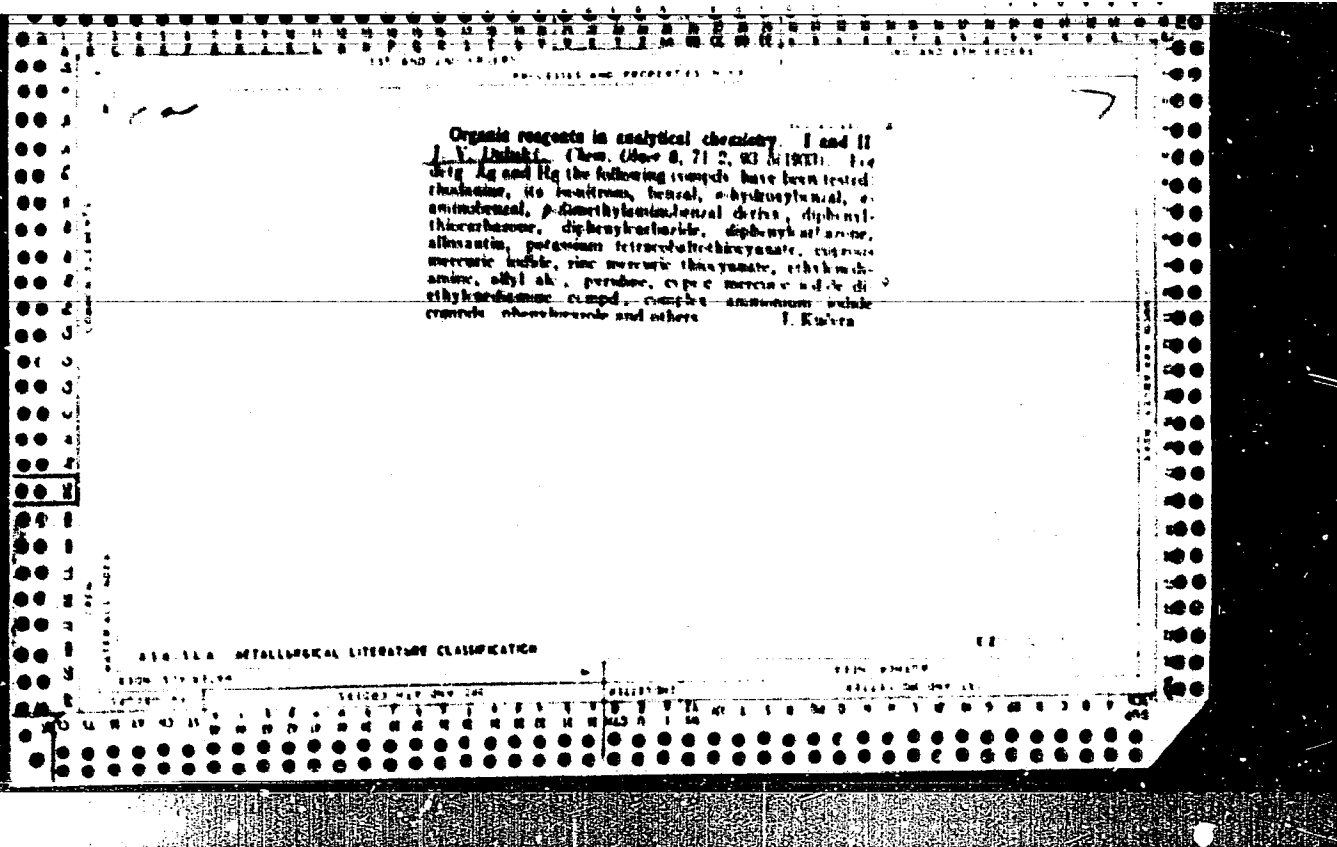
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Mercurimetric determination of iodine with diphenylcarbazone as indicator
J. A. Dulsky and J. Tridick. *Chem. Abstr.* 6, 41 2442 in English, 1963. Diphenyl-
carbazone can be used as a very sensitive indicator in the mercurimetric determination of I.
The intensively violet coloration with Hg^{2+} is clearly visible even in the presence of
mod. Hg^{2+} formed during the reaction.
Jan-slav Kucera



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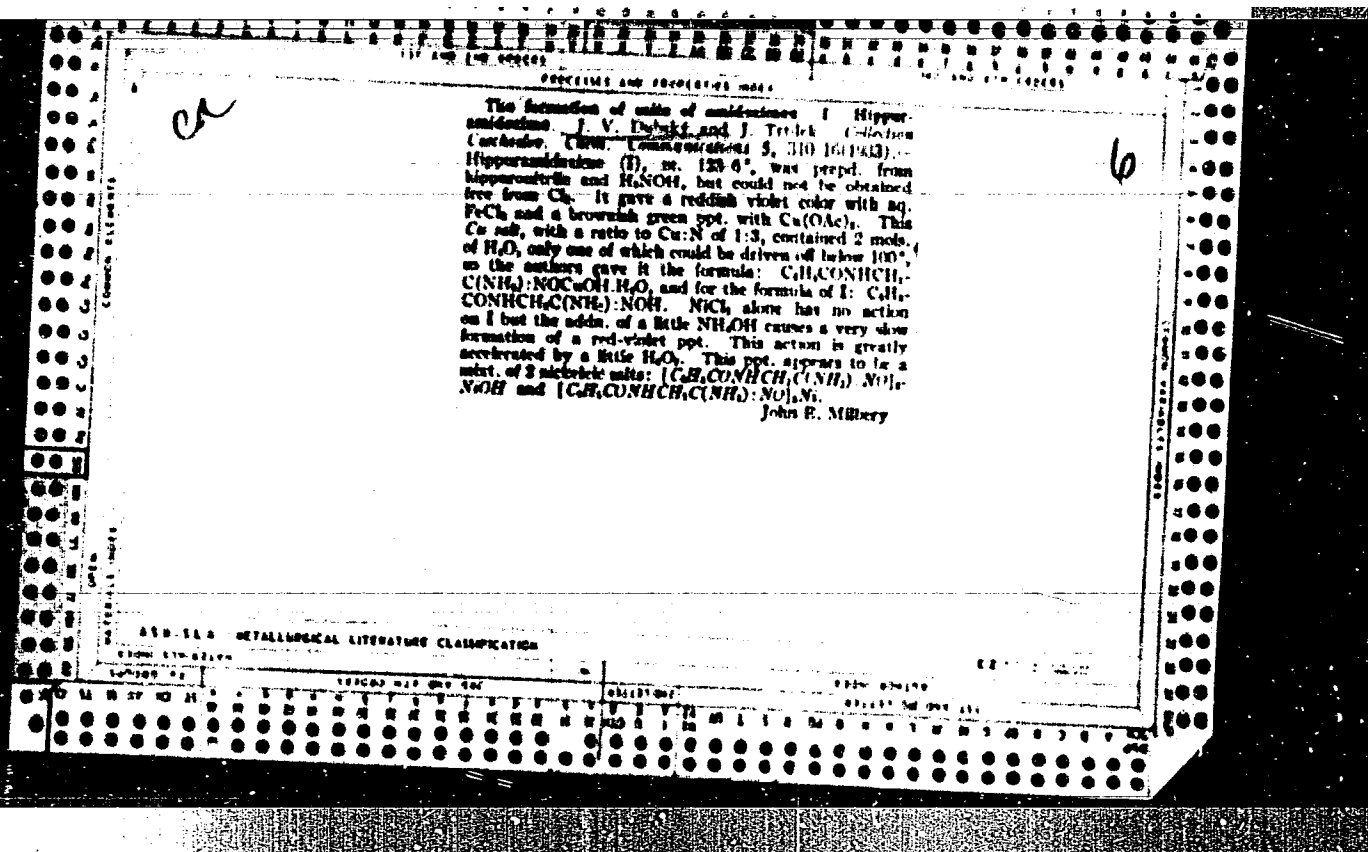
Application of Microcosimetry to the Determination of Silver. J. V. Palsky
and J. Totibek (Chem. Obzr., 1933, 8, 86-88).—See J. Ind. Metals, 1933, 34,
648.—A. R. P.

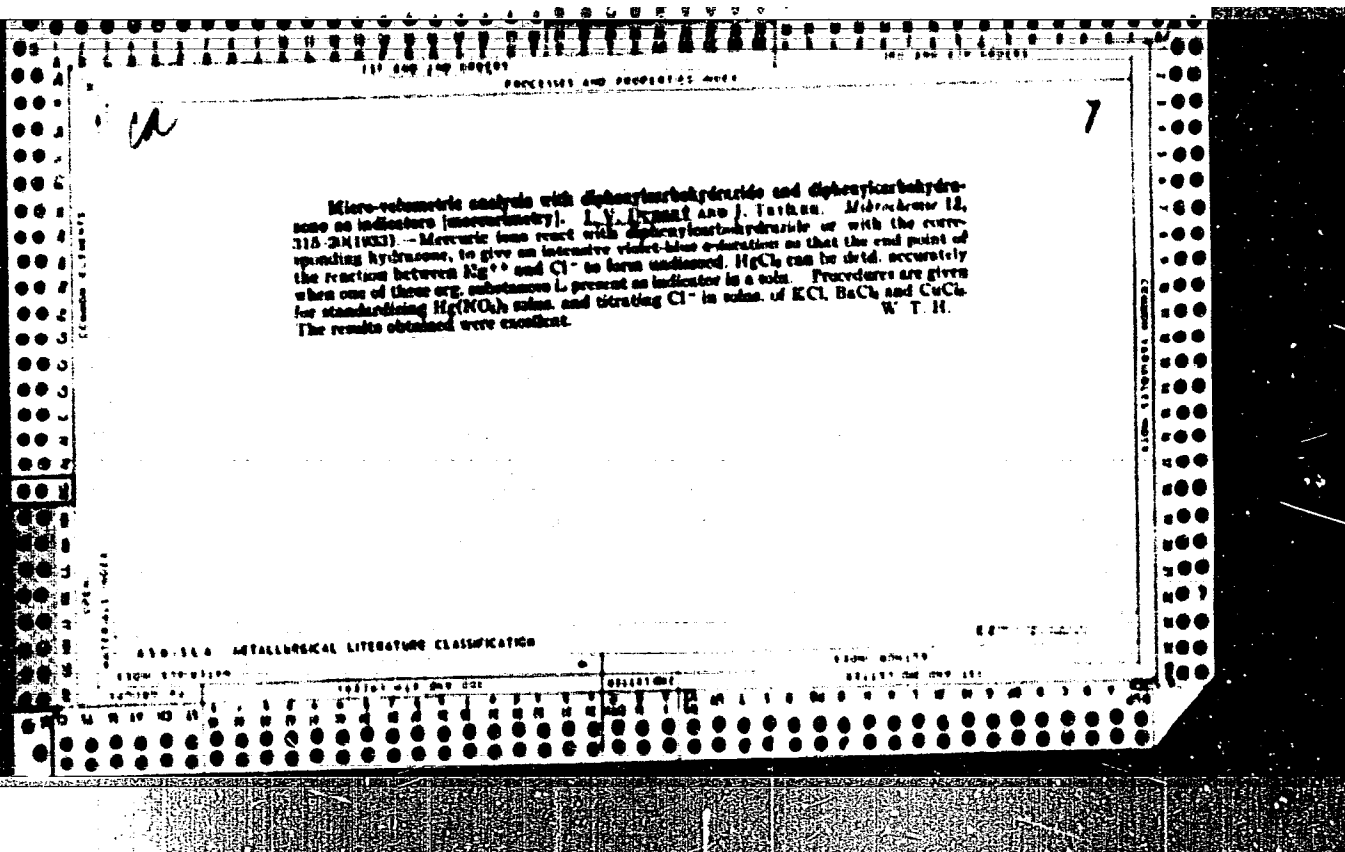
450-55A METALLURGICAL LITERATURE CLASSIFICATION

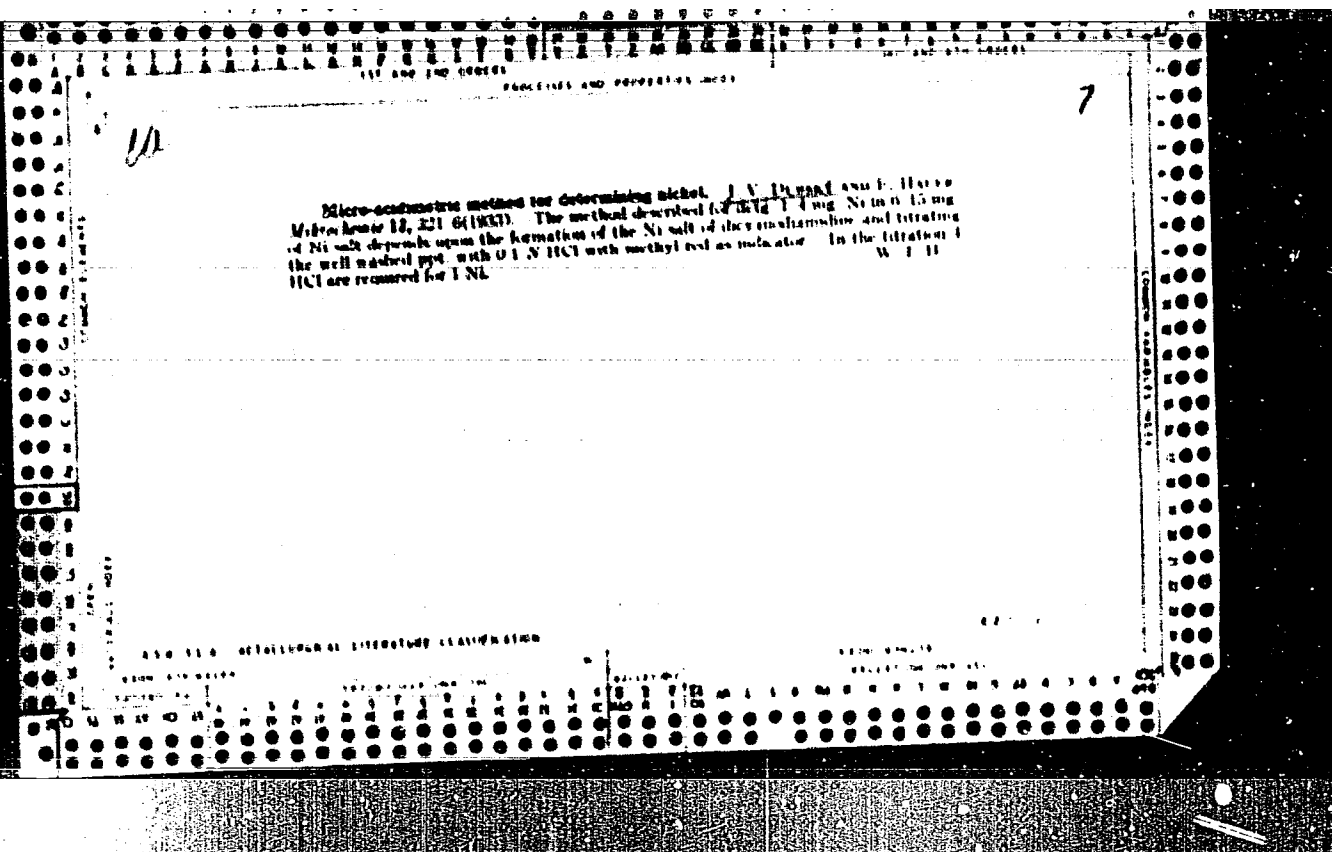
TOPIC SUBJECTS

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Reactions of bismuth with organic hydrosulphides. E. J. Y. LEECH, A. O'LEO, and J. TUCKER (Chem. Soc., 1954, B, 175-176; Chem. Soc., 1955, 1767-1768; cf. preceding abstract). Comparison of the results of the reaction of bismuth with organic hydrosulphides and with organic hydrosulphides (H₂S) is discussed. The importance of the reaction of bismuth with organic hydrosulphides is shown by reference to the reaction of bismuth with organic hydrosulphides. The organic reactions of many examples of organic hydrosulphides are described.

H. N. R.

452.554 METALLURGICAL LITERATURE CLASSIFICATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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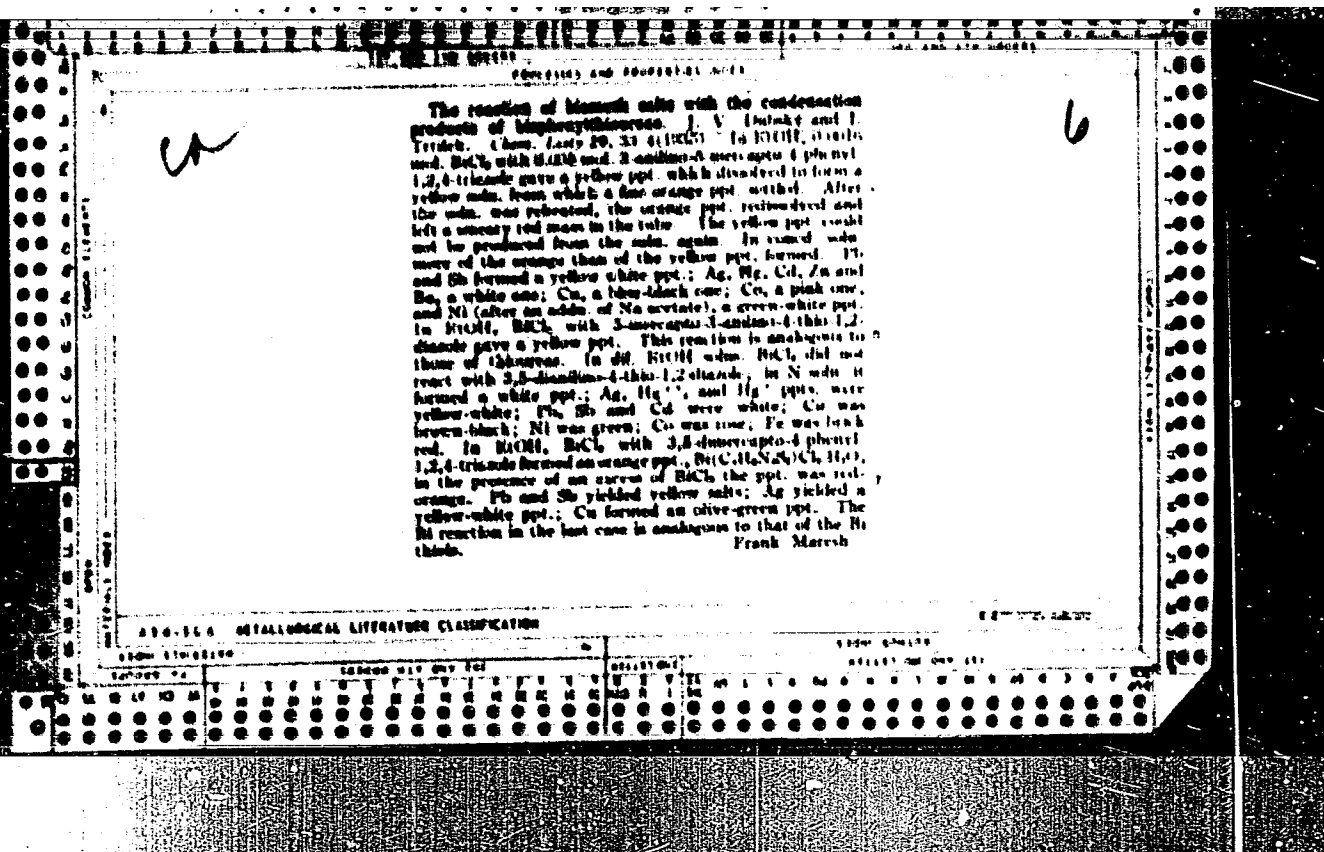
The color reaction of bismuth. H. J. V. Dulakt and J. Triflet. Chem. Abstr. 6, 213-3 (in Eng.) (1934).
The K salt of mercaptophenylthiohydrazine is just as sensitive a reagent for Bi as dimercaptolhydrazine (bis-methyl 1). The limit of detection is 1.3 γ Bi; the limit of soln. 1:20,000. J. Kuvera

ASD-35A METALLURGICAL LITERATURE CLASSIFICATION

Calcium borate borate compounds. J. V. Dabko
and J. Trifiro. Pub. Forum. ser. chem. Mater. No. 106,
3-4 (1984).--From $[Ca_2 \text{ form}](Ca_2 Si_2 O_7)$, in which "form"
is $SiCO_3$, the following complex compounds were prepared:
 $[Ca_2 \text{ form}][O(NO_3)_2 Ca_2 Si_2 O_7]$ (picrate), $[Ca_2 \text{ form}][O_2 Si_2 O_7]$,
 $[Ca_2 \text{ form}][O_2 Si_2 O_7]$, $[Ca_2 \text{ form}][O_2 Si_2 O_7]$ and $[Ca_2 \text{ form}][O_2 Si_2 O_7]$.
form, or $[Ca_2 \text{ form}](OAc)_2$. V. D. Karpukhin

ch
The reaction of aminoacetic acids with cadmium and zinc salts. I. V. Dubsky and J. Tittel. Chem. Zvesti 29, 76 (1955) and 77 (1956). The free aminoacetic acids did not react with either Zn or Cd salts; after an addition of Na acetate to the free acids, only the α acid formed a ppt with Cd and Zn. In a neutral or faintly acid soln, α -NH₂CH₂COOK gave a white ppt. immediately with Cd or Zn salts, α -NH₂CH₂COOK did not react visibly with Zn (even in 0.1 N soln) but gave a white ppt. with Cd after many min. β -NH₂CH₂CH₂COOK (I) did not react visibly with Zn but yielded an instantaneous, white, cryst. ppt. with Cd. While the Zn salts of the aminoacetic acids were very sol., those of Cd were very insol. in a limited range of conditions as in a precisely neutral medium, in a soln. of the β -acid neutralized with KOH against phenol-

phthalate, and in the presence of an excess of basic salt of the aminoacetic acid. The Cd ppt. with β -NH₂CH₂CH₂COOK (II) (0.001 M CdCl₂ 2H₂O) was only slightly sol. in free H₂O and 0.1 N KOH, dissolved quickly in weak acids or in weakly acidified soln., and could not be used for gravimetric analysis. With free 0.01 N CdCl₂, it gave a ppt. instantly; with 1 cc. of 0.001 N CdCl₂, it gave a ppt. after 30 min.; this corresponded to 0.01 mg. of Cd in a threshold concn. of 1.17%. Under identical conditions, ZnCl₂ did not yield a ppt. (only the 1.0 N Zn soln gave a temporary ppt. which quickly dissolved and reappeared only in an excess of the Zn reagent as a white lake). The reactions of the α , β , and γ aminoacetic acids in strictly neutral soln. with Ag, Pb, Hg, Cu, Sn, Bi, Co, Ni and Fe are described; all ppts. dissolved in dil. HNO₃.
Frank Marzke



ca

6

The cause of red precipitates of bismerth salts of bismertholite. I. V. Jankovskiy and A. A. Oble. Chem. Obzr. 10, 83-4, 197-8 and 123-5 (in English) (25/1975): cf. C. A. 20, 18759. — According to the composition of red ppt. of Bi salts of dimercaptodithiols (bismertholite) the cause of this characteristic reaction in the 6-membered complex valence cycle II in which the metal is bound to a given number on both atoms of S. This theory is verified by the presence of some neg. hydrosulfides and by study of their reacting properties. It has been found that the reaction is pos. in all compounds which can form the valence cycle II (dithiouronic, peroxodithiouronic acid, trithiophosphoric acid) and neg. in all compounds unable to form such a cycle (monomethylthiols of dimercaptodithiols, monomethyl- and dimethylthiols of dithiouronic, dithiophosphoric, bismertholite, hydrosulfides, hydrosulfides, K cyanamides, hydrosulfides, hydrosulfides). The majority of these last-mentioned compounds, as far as they possess thioalkyl groups, react with the Bi salts as thioamides, forming yellow salts, or ppts., resp.

I. Kozlov

ASB 114 METALLURGICAL LITERATURE CLASSIFICATION

Formation of salts of amidinoformic and bromohydrazonic acids. I. V. Dzhigal', M. Kuznetsov and J. Trofimt. Collection Chemical Papers, Communications 7, 1-6 (1958); cf. C. A. 52, 3439. — $(\text{PACN})\text{H} \cdot \text{NO}(\text{OH})\text{H}_2\text{O}$ was prepd. from $\text{PAC}(\text{NO}(\text{OH}))\text{H}$ and $\text{Ca}(\text{OAc})_2$ in water. The corresponding Ni salt $(\text{PACN})\text{H} \cdot \text{NO}(\text{OH})\text{H}_2\text{O}$ begins to decompose at 80° . When to the solution of amidinoformic acid in water is added a 1 N NiCl_2 then $\text{Ni}(\text{OH})_2$ is formed. $(\text{PACN}(\text{OH}))\text{Cl} \cdot \text{NO}(\text{OH})\text{H}_2\text{O} \cdot \text{Ni}(\text{OH})_2 \cdot \text{H}_2\text{O}$ is formed. NiCl_2 with $(\text{H}_2\text{NC}(\text{NO}(\text{OH}))\text{H})_2$ gives $\left[\begin{array}{c} \text{H}_2\text{NC} \cdot \text{NO} \\ \text{H}_2\text{NC} \cdot \text{NOH} \end{array} \right] \text{Ni} \cdot \text{H}_2\text{O}$. The addn. of $\text{Ca}(\text{OAc})_2$ to a soln. of amidinoamidinoformic (II) forms $(\text{H}_2\text{NC}(\text{CH}(\text{CNH}))\text{NO})_2\text{H}_2\text{O} \cdot \text{H}_2\text{SO}_4$. When it is added to aq. NiCl_2 (neutralized by NaOAc) then $\text{Ni}(\text{OH})_2$ is added, the corresponding Ni salt $\text{Ni}(\text{H}_2\text{NC}(\text{CH}(\text{CNH}))\text{NO})_2\text{H}_2\text{O}$ is obtained. $\text{PAC}(\text{NO}(\text{OH})\text{OH})$ and PACN give $(\text{PAC}(\text{OH}))\text{NO}(\text{OH})\text{H}_2\text{O} \cdot \text{H}_2\text{O}$. $(\text{PAC}(\text{OH}))\text{NO}(\text{OH})\text{Ca}$ was also obtained. W. A. M.

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PROCESSING AND RECORDING UNIT

11-3

These materials consist of cyanogen compounds, A. V. Deryagin, E. K. Kuznetsov, and J. Pankratov (Chem. Abstr. USSR, 1963, 7, 311-312); G. A. 1963, 723. Double Fe(CN)₂ salt. pyridine, m.p. 200° appears to be solid. By adding eq. FeCl₃ according to eq. 1:1 mol. FeCl₃ and anti. pyridine, Fe(CN)₂ double salt appears to be solid. Similarly found eq. 1:2 (mol.) Fe(CN)₂ NO and antipyrine.

ADD. 11.4 METALLURGICAL LITERATURE CLASSIFICATION

EDITION SYMBOLS	EDITION MAP ONE TWO	EDITION ONE	EDITION ONE ONE
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

BC

A-1

~~Synthesis of compounds containing J. V. DUR-~~
~~and A. OZGA and J. Suckert (Mikrochim., 1963,~~
~~78, 208-211); cf. A.: 1964, 575].—MI salts give a~~
~~yellow color with thiosemicarbazide (I) and an orange-~~
~~yellow or red pink. Both compounds containing~~
~~the group $\text{N}(\text{CH}_3)_2\text{-O-NH-CO-NH-CO-NH-CO-NH-CO-NH}$~~
~~(II) subjected to the formation of a six-membered~~
~~chain which is similar to tart K. No reagents have~~
~~been suggested and their behavior is accounted for~~
~~on this basis. Microchemical tests with (I) and (II)~~
~~are described and the influence of other ions is dis-~~
~~cussed.~~

R. B.

ABO-SLA METALLURGICAL LITERATURE CLASSIFICATION

*Composition of Compounds Resulting from A. Martin's Microchemical Reactions. J. V. Hubert and A. Lange (*Chem. Ind.*, 1936, 56, 117, 577, 230). A. Martin (*Mikrochim.*, 1929, 7, 231-234) published the results for detecting metals by use of pyridine and acetic acid. Empirical data the authors located the resulting products and investigated their composition. The compounds did not correspond to those shown in Table I, but regularly to those in Table II.

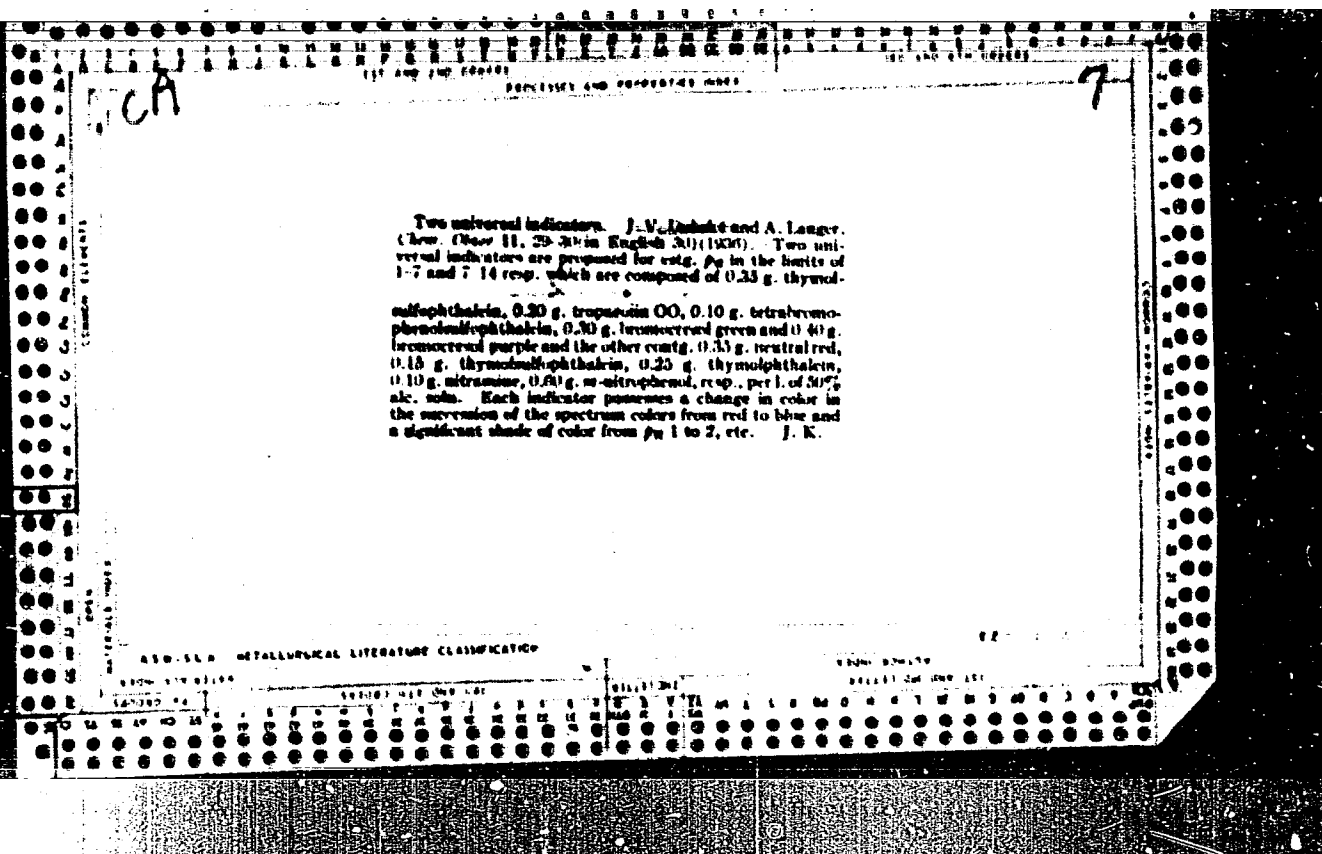
Table 1.

$\text{Co}(\text{SCN})_4(\text{pyr})_2$, HSCN ,
 $(\text{C}_6\text{H}_5)_3\text{N}(\text{SCN})_2(\text{pyr})$, HSCN ,
 $(\text{C}_6\text{H}_5)_3\text{N}(\text{SCN})_2(\text{chin})$, HSCN ,
 $(\text{C}_6\text{H}_5)_3\text{N}(\text{SCN})_2(\text{and})$, HSCN ,
 N_3NH_2 , N_3NH_2 (and) HSCN ,
 $\text{C}_6\text{H}_5\text{N}_3$, N_3NH_2 (and) HSCN ,
 2nd L and HCl

Table 11.

$\text{Co}(\text{SCN})_3(\text{pyr})_3$
 $\text{Co}(\text{SCN})_3(\text{pyr})_2\text{H}_2\text{N}_2$
 $\text{Co}(\text{SCN})_3(\text{anil})_3$
 $\text{Co}(\text{SCN})_3(\text{pyr})_2\text{H}_2\text{O}$
 $\text{Co}(\text{SCN})_3(\text{anil})_2$
 $\text{Ni}(\text{SCN})_3(\text{anil})_2\text{H}_2\text{N}_2$
 $\text{Ni}(\text{SCN})_3(\text{anil})_2$
 $\text{H}_2\text{SO}_4(\text{anil})_3$

ALL INFORMATION CONTAINED HEREIN IS UNCLASSIFIED



BC

Colour reaction of glycine with ferric chloride.
 I. J. V. Dronk and A. LARSEN (Diss. Chem. Comm., 1958, 8, 435-448).—When FeCl_3 (1 mol.) and glycine (1) (0.6 mol.) in a little H_2O are evaporated at 40° and the residue is extracted with EtOH , the compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 4(1)\cdot 2\text{H}_2\text{O}$, m.p. 127° (decomp.), is obtained. 1 mol. each of FeCl_3 and (1) in a little H_2O deposit a mixture, converted by EtOH into the compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 4(1)\cdot 2\text{H}_2\text{O}$, m.p. 174° (decomp. from 175°), which with EtOH gives an isom. compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 4(1)\cdot 2\text{H}_2\text{O}$, m.p. 115° (decomp.), and from the filtrate a cryst. mixture separates, which is converted by EtOH into the compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 4(1)\cdot 2\text{H}_2\text{O}$, m.p. 110° , decomp. 125° . When, however, FeCl_3 and (1) (1 mol.) in H_2O are evaporated and the residue is extracted with EtOH , there is obtained a compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 4(1)\cdot 2\text{H}_2\text{O}$, decomp. 120° . FeCl_3 and (1) (1.6 mol.) in H_2O deposit an isomere compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 2(1)\cdot 2\text{H}_2\text{O}$, m.p. 112° (decomp.), converted by EtOH into the hydrate,

2-3

+ $2\text{H}_2\text{O}$, m.p. 173° (decomp.), which in H_2O gives the dihydrate, m.p. 173° (decomp.). When FeCl_3 and (1) (1.6 mol.) are evaporated in H_2O and the residue is extracted with EtOH , the compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 4(1)\cdot 2\text{H}_2\text{O}$, decomp. 178° , is obtained. 2 mole. of (1) give similarly the compound, $\text{OH}\cdot\text{FeCl}_2\cdot\text{FeCl}_3\cdot 4(1)\cdot 2\text{H}_2\text{O}$, decomp. 123° . If 3 mole. of (1) are used, only (1) or its hydrochloride crystallizes. The solid compounds are yellow to black, but give red solutions. R R C

BC R-1

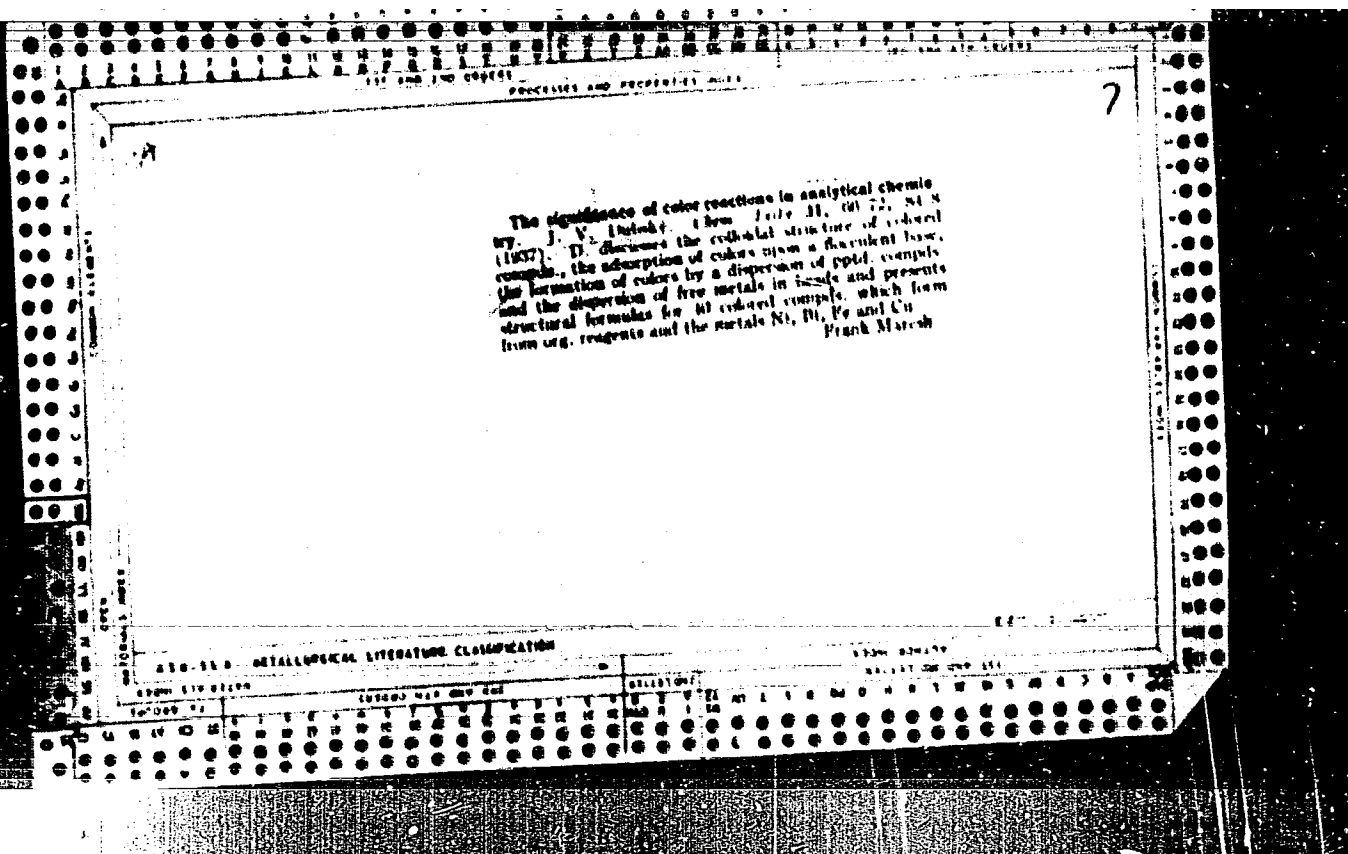
PROCESSES AND PROPERTIES INDEX

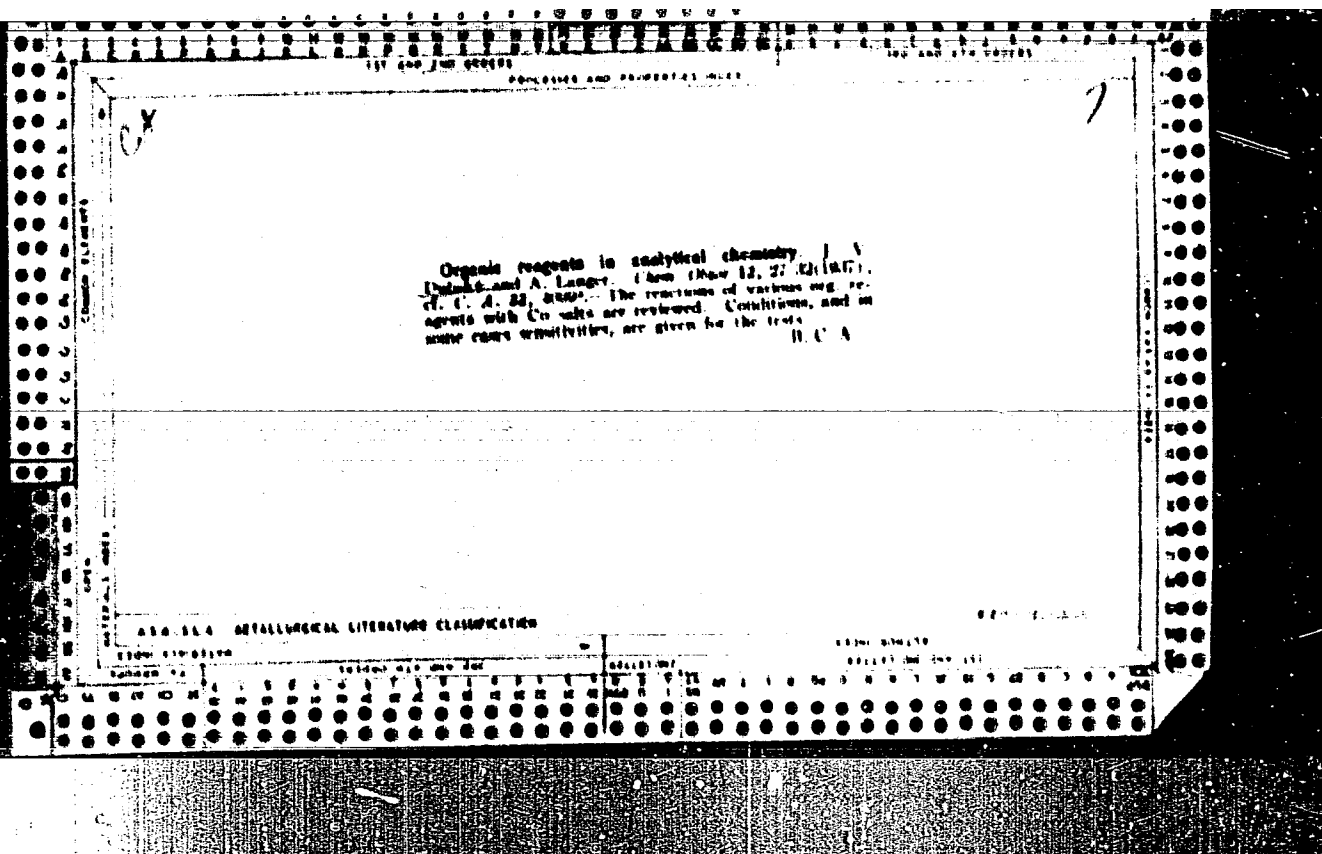
Available nitroprussides of metals. J. V. Dumas and R. Knauss (Publ. Fac. Sci. Univ. Nancy, 1962, 282, 1-4). The nitroprusside precipitates $\text{Fe}(\text{CN})_5\text{O}$ (blue), $\text{Co}(\text{CN})_5\text{O}$ (dark pink), $\text{Ni}(\text{CN})_5\text{O}$ (pink), $\text{Cu}(\text{CN})_5\text{O}$ (white), and $\text{Ag}(\text{CN})_5\text{O}$ (white). Even mixtures of salts of these metals ($\text{K}(\text{CN})_5\text{O}$, $\text{Na}(\text{CN})_5\text{O}$) form a complex only with Fe^{3+} nitroprusside. F. R.

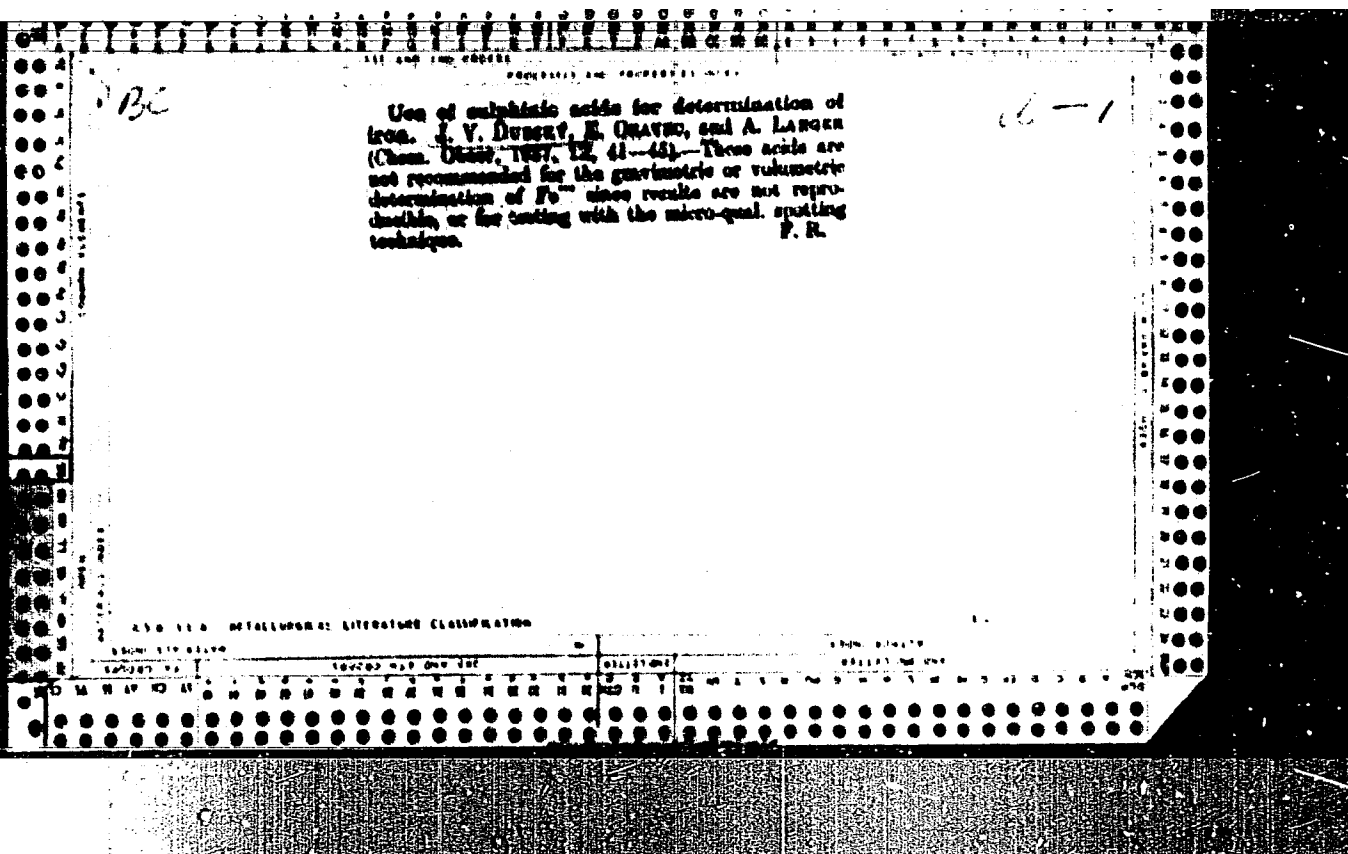
ASS-154 METALLURGICAL LITERATURE CLASSIFICATION

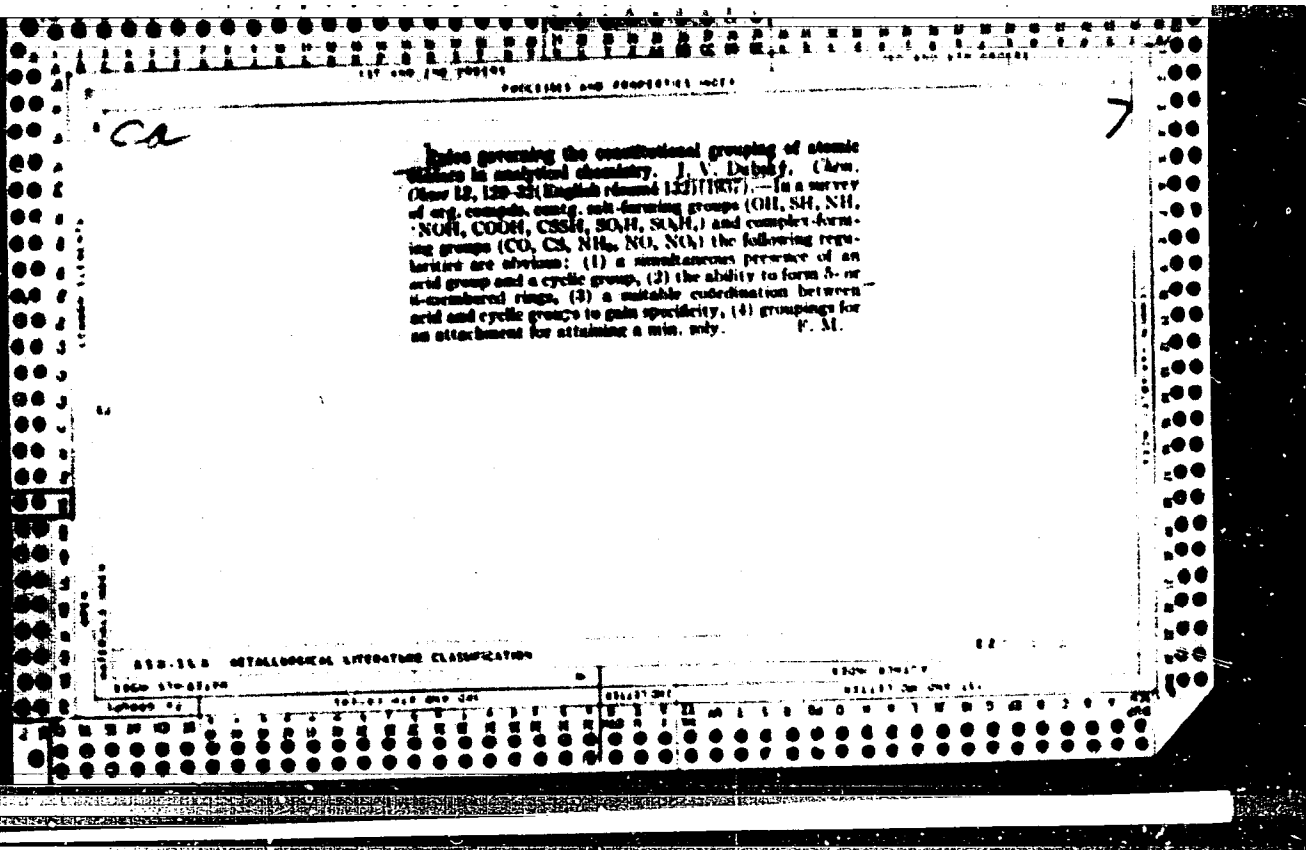
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21	22	23	24
25	26	27	28
29	30	31	32
33	34	35	36
37	38	39	40
41	42	43	44
45	46	47	48
49	50	51	52
53	54	55	56
57	58	59	60
61	62	63	64
65	66	67	68
69	70	71	72
73	74	75	76
77	78	79	80
81	82	83	84
85	86	87	88
89	90	91	92
93	94	95	96
97	98	99	100

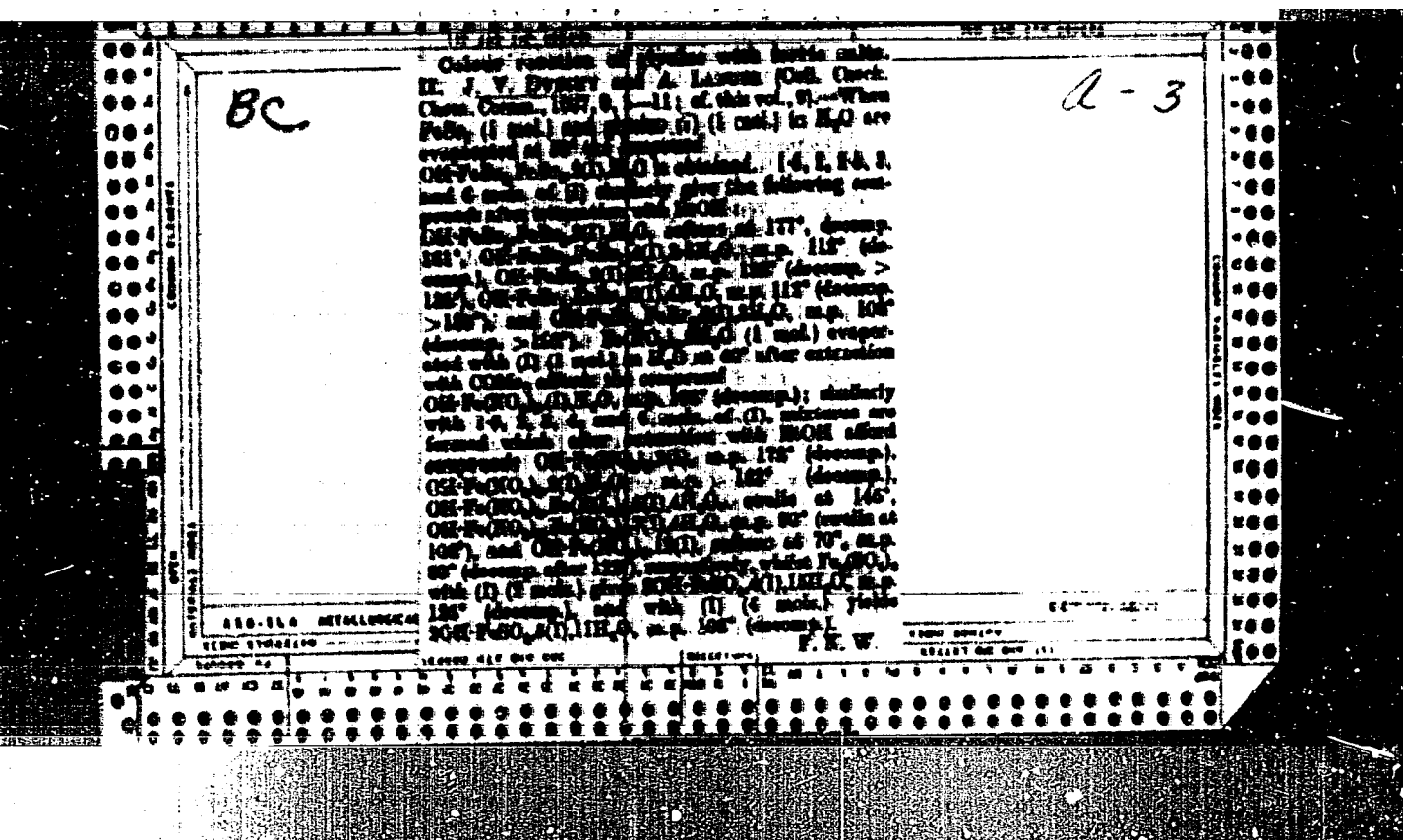
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10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990

10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990

BC

H9

EXTRACTS AND FOOTNOTES PAGE

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Reaction of "thiuron sulphide." J. V. Dwyer, A. E. L. Smith, and A. G. Smith, Can. Chem. Comm., 1961, 6, 257, 258. (CH₃)₂S₂ in EtOH with H₂S under pressure yields dithiuron, m.p. 119° (C₁₀H₁₂N₂S₂). The "thiuron sulphide" of Haeckel and Kuebler (A. 190, 191, 192) yields the following salts (R = H, CH₃, C₂H₅, n-C₄H₉, i-C₄H₉, n-C₆H₁₃, i-C₆H₁₃, C₈H₁₇, C₁₀H₂₁, C₁₂H₂₅, C₁₄H₂₉, C₁₆H₃₃, C₁₈H₃₇, C₂₀H₄₁, C₂₂H₄₅, C₂₄H₄₉, C₂₆H₅₃, C₂₈H₅₇, C₃₀H₆₁, C₃₂H₆₅, C₃₄H₆₉, C₃₆H₇₃, C₃₈H₇₇, C₄₀H₈₁, C₄₂H₈₅, C₄₄H₈₉, C₄₆H₉₃, C₄₈H₉₇, C₅₀H₁₀₁, C₅₂H₁₀₅, C₅₄H₁₀₉, C₅₆H₁₁₃, C₅₈H₁₁₇, C₆₀H₁₂₁, C₆₂H₁₂₅, C₆₄H₁₂₉, C₆₆H₁₃₃, C₆₈H₁₃₇, C₇₀H₁₄₁, C₇₂H₁₄₅, C₇₄H₁₄₉, C₇₆H₁₅₃, C₇₈H₁₅₇, C₈₀H₁₆₁, C₈₂H₁₆₅, C₈₄H₁₆₉, C₈₆H₁₇₃, C₈₈H₁₇₇, C₉₀H₁₈₁, C₉₂H₁₈₅, C₉₄H₁₈₉, C₉₆H₁₉₃, C₉₈H₁₉₇, C₁₀₀H₂₀₁, C₁₀₂H₂₀₅, C₁₀₄H₂₀₉, C₁₀₆H₂₁₃, C₁₀₈H₂₁₇, C₁₁₀H₂₂₁, C₁₁₂H₂₂₅, C₁₁₄H₂₂₉, C₁₁₆H₂₃₃, C₁₁₈H₂₃₇, C₁₂₀H₂₄₁, C₁₂₂H₂₄₅, C₁₂₄H₂₄₉, C₁₂₆H₂₅₃, C₁₂₈H₂₅₇, C₁₃₀H₂₆₁, C₁₃₂H₂₆₅, C₁₃₄H₂₆₉, C₁₃₆H₂₇₃, C₁₃₈H₂₇₇, C₁₄₀H₂₈₁, C₁₄₂H₂₈₅, C₁₄₄H₂₈₉, C₁₄₆H₂₉₃, C₁₄₈H₂₉₇, C₁₅₀H₃₀₁, C₁₅₂H₃₀₅, C₁₅₄H₃₀₉, C₁₅₆H₃₁₃, C₁₅₈H₃₁₇, C₁₆₀H₃₂₁, C₁₆₂H₃₂₅, C₁₆₄H₃₂₉, C₁₆₆H₃₃₃, C₁₆₈H₃₃₇, C₁₇₀H₃₄₁, C₁₇₂H₃₄₅, C₁₇₄H₃₄₉, C₁₇₆H₃₅₃, C₁₇₈H₃₅₇, C₁₈₀H₃₆₁, C₁₈₂H₃₆₅, C₁₈₄H₃₆₉, C₁₈₆H₃₇₃, C₁₈₈H₃₇₇, C₁₉₀H₃₈₁, C₁₉₂H₃₈₅, C₁₉₄H₃₈₉, C₁₉₆H₃₉₃, C₁₉₈H₃₉₇, C₂₀₀H₄₀₁, C₂₀₂H₄₀₅, C₂₀₄H₄₀₉, C₂₀₆H₄₁₃, C₂₀₈H₄₁₇, C₂₁₀H₄₂₁, C₂₁₂H₄₂₅, C₂₁₄H₄₂₉, C₂₁₆H₄₃₃, C₂₁₈H₄₃₇, C₂₂₀H₄₄₁, C₂₂₂H₄₄₅, C₂₂₄H₄₄₉, C₂₂₆H₄₅₃, C₂₂₈H₄₅₇, C₂₃₀H₄₆₁, C₂₃₂H₄₆₅, C₂₃₄H₄₆₉, C₂₃₆H₄₇₃, C₂₃₈H₄₇₇, C₂₄₀H₄₈₁, C₂₄₂H₄₈₅, C₂₄₄H₄₈₉, C₂₄₆H₄₉₃, C₂₄₈H₄₉₇, C₂₅₀H₅₀₁, C₂₅₂H₅₀₅, C₂₅₄H₅₀₉, C₂₅₆H₅₁₃, C₂₅₈H₅₁₇, C₂₆₀H₅₂₁, C₂₆₂H₅₂₅, C₂₆₄H₅₂₉, C₂₆₆H₅₃₃, C₂₆₈H₅₃₇, C₂₇₀H₅₄₁, C₂₇₂H₅₄₅, C₂₇₄H₅₄₉, C₂₇₆H₅₅₃, C₂₇₈H₅₅₇, C₂₈₀H₅₆₁, C₂₈₂H₅₆₅, C₂₈₄H₅₆₉, C₂₈₆H₅₇₃, C₂₈₈H₅₇₇, C₂₉₀H₅₈₁, C₂₉₂H₅₈₅, C₂₉₄H₅₈₉, C₂₉₆H₅₉₃, C₂₉₈H₅₉₇, C₃₀₀H₆₀₁, C₃₀₂H₆₀₅, C₃₀₄H₆₀₉, C₃

[illegible]

[illegible]

Organic compounds in analytical chemistry.
 J. V. Dumas and A. L. Lavoisier (Paris, 1802, 13.
 49-50, 75-76, 88-89, 100-101, 110-111, 120-121, 130-131, 140-141, 150-151, 160-161, 170-171).—A
 detailed description of the various reactions of Fe
 salts with 30 org. reagents, and of Fe salts with 60
 org. reagents, is given. The solubility and reactivity of
 reactions are given. Fe salts react with a group
 containing carbonic H such as CO_2 or OH in an
 open chain, whereas the combination of an alcoholic
 group with an oxide, which is sp. for Ca^{2+} , does not
 react with Fe.
 P. R.

1.1.1. METALLURGICAL LITERATURE CLASSIFICATION

BC A-1

SYNTHESIS AND REACTION OF COPPER

Synthesis of groups specific for certain atoms in analytical chemistry. IV. Groups for the specific detection of copper. J. V. DUMAS and A. LANGE (Chem. Abstr. 1938, 32, 178-184). Felt's formula for the Cu^{2+} salt of benzoxazine ("Cupron") is questioned. It is a basic Cu^{2+} salt (I), easily polymerized to a "diol" salt as in (II), which is insol. in $AcOH$, and absorbs traces of $Cu(OH)_2$ and NH_3 , but does not form an additive complex with the latter. F. R.

(I)

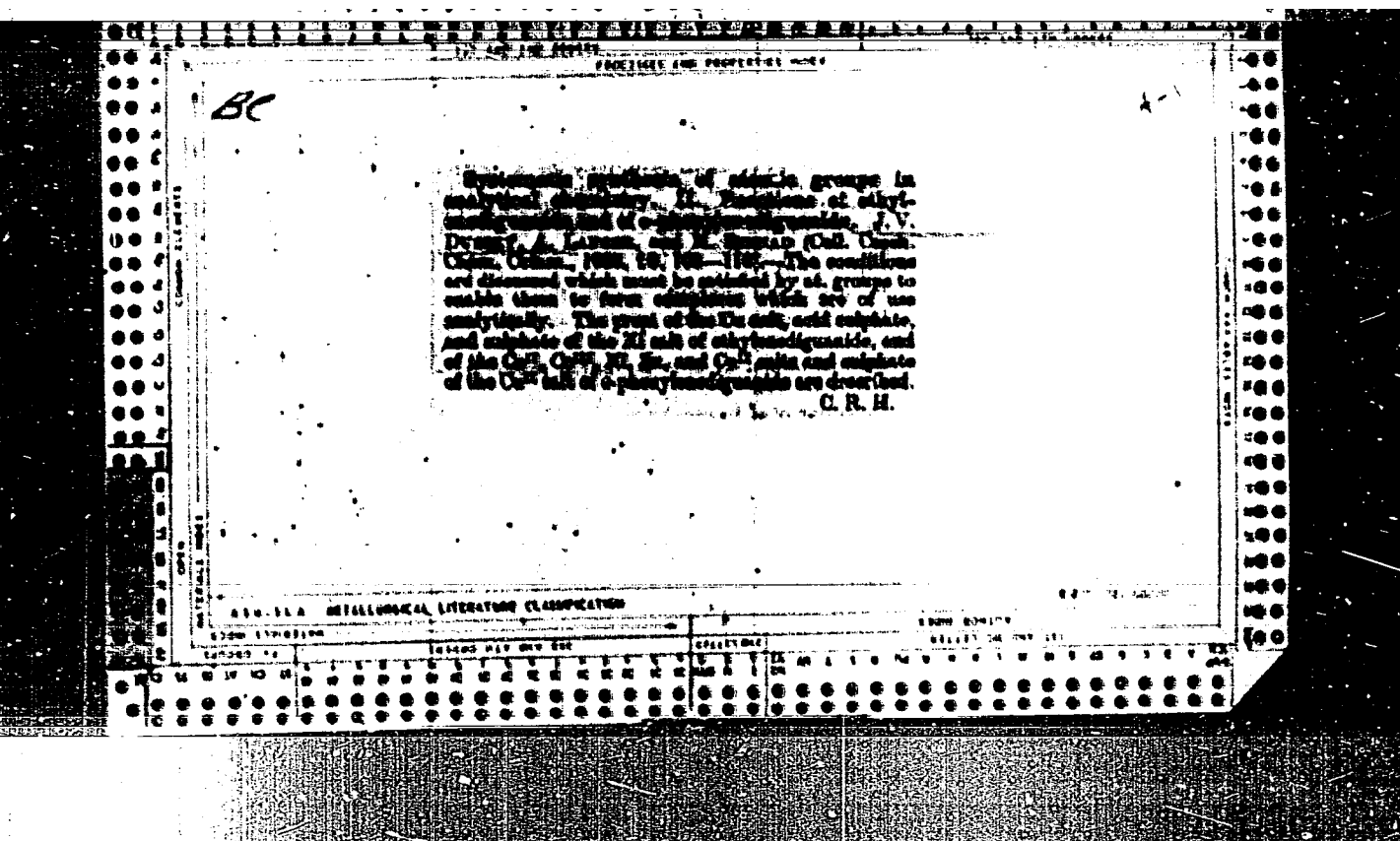
$$\begin{array}{c} H \\ | \\ C_6H_5-O-Cu-OH \\ | \\ C_6H_5-NO \end{array}$$

(II)

$$\begin{array}{c} H \\ | \\ \text{---}O-Cu-O\text{---} \\ | \\ H \end{array}$$

ADD. 1.1. METALLURGICAL LITERATURE CLASSIFICATION

SYNOPSIS										REMARKS									
SUBJECT										REMARKS									
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20



BC

A-1

Systematic synthesis of stannic groups in analytical chemistry. III. Reactions of the silver affinity group, O-NH-O . J. V. Dumas, V. Borealis, and V. Gaurix (Mikrochem., 1952, 25, 134-142).—The pptn. and colours of certain metal salts of rhodamine (Ag, Cu, Hg, Pb), 2:4-dihydroxythianthene (Ag, Cu, Hg), 2-thiopyranthene (Ag, Hg), 2-thiopyranthene (Ag), 6-p-dimethylaminocarbonylthianthene (Ag), rhodamine-red (Ag), 6-p-dimethylaminocarbonylthianthene (I), 6-p-dimethylaminocarbonylthianthene (II) (Ag, Pb, Hg, Cu, Cd, Mn, Co, Ni, Zn), and 6-p-dimethylaminocarbonylthianthene-2-thiopyranthene (II) (Ag, Pb, Hg, Cu, Cd, Mn, Co, Ni, Zn) are described. In many cases, analyses of the compounds are given. (I) gives with AgNO_3 a violet ppt. (limiting sensitivity 1.2 μg . of Ag), with Hg salts a blue ppt. (0.2 μg . of Hg), and with Cu salts a very dark violet ppt. (0.15 μg . of Cu). Zn salts react only after 12 hr. With (II) in ammoniacal solution Ag⁺ gives an orange-red ppt. (0.9 μg . of Ag), and Hg²⁺ a carmine-red ppt. (0.2 μg . of Hg). Only the group O-NH-O can be regarded as the active Ag affinity group. L. R. T.

B

A-1

Macro- and micro-reaction of iron with thioglycolic acid. J. V. DUNN and V. SINDLER (Microchim. Acta, 1958, 3, 553-555).—When air is excluded, Fe^{2+} ions give no colour reaction with

$\text{HS-CH}_2\text{-CO}_2\text{H}$ (I), even after addition of aq. NH_3 . When air is admitted, an intense violet colour is produced. Fe^{3+} ions produce first a blue colour due to the formation of $\text{Fe}(\text{S-CH}_2\text{-CO}_2\text{H})_3$, and then, in presence of NH_3 , the violet-red colour due to $\text{Fe}(\text{S-CH}_2\text{-CO}_2\text{NH}_3)_3$. Excess of FeCl_3 gives not $\text{Fe}(\text{OH})_3$ but the ochre-brown azo-salt of Fe^{III} ferrithioglycolate. For Fe^{2+} , the limiting sensitivity is 0.13 $\mu\text{g.}$, and for (I), 60 $\mu\text{g.}$ L. S. T.

ASH 31.8 METALLURGICAL LITERATURE CLASSIFICATION

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A-1

Microdetermination of thiocyanosuccinic acid.
J. V. DUNN and V. S. KRAMER (Microchem.,
1958, 32, 200-201).—The dark violet ppt. from
 $\text{HOOCCH}_2\text{CO}_2\text{H}$ and Cu^{+} , OxCl is a $\text{Cu}^{\text{I}}-\text{Cu}^{\text{II}}$
derivative, $\text{Cu}_2(\text{SCN})_2\text{CO}_2\text{Cu}_2(\text{OH})_2 \cdot \frac{1}{2}\text{H}_2\text{O}$, of
 $\text{HSCH}_2\text{CO}_2\text{H}$ and in the absence of the latter may
be used for the detection or determination of
 $\text{HOOCCH}_2\text{CO}_2\text{H}$. With CaSO_4 , the salt
 $(\text{SCN})_2\text{CO}_2\text{Ca}$ is obtained. E. W. W.

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FROM SYMBOLS

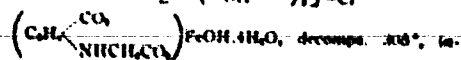
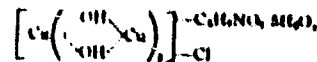
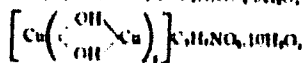
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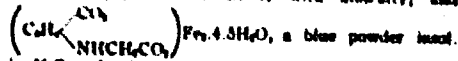
CA

The reactions and salts formed by phenylglycine, nitrophenylglycine, phenylglycine- α -carboxylic acid and 1-aminocyclohexane-4-carboxylic acid. J. Y. Dubaut, M. Joubert, M. Rueda, A. Ollivier and V. Rueda. *Chem. Ind. 1968*, 346-350 (1968). Phenylglycine formed the salts R_2Ag ($R = PhNHCH_2CO_2$), $R_2Pb \cdot 7H_2O$, white plates, m. 108° and decomp. 174° , $R_2Cu \cdot H_2O$, pale blue crystals decomp. at 174° , R_2Cu , dark green crystals decomp. 183° , $R_2Cu \cdot 2NH_3$, R_2Fe , $R_2Cr(OH) \cdot 10H_2O$, stable at 320° , $R_2Al(OH)$, solid at 320° , $R_2Zn \cdot 8H_2O$, and $R_2Co \cdot OH \cdot 7H_2O$. Nitrophenylglycine, m. 100° , sol. in EtOH and warm H_2O , formed pale yellow needles, reacted with

Hg^{2+} to form $C_{11}H_{11}N_2Hg$ and did not react with any other cations. Phenylglycine- α -carboxylic acid formed $Hg(C_{11}H_{11}N_2O_4) \cdot 4H_2O$, $HgC_{11}H_{11}NO_4$, $AgC_{11}H_{11}N_2O_4$, $AgC_{11}H_{11}N_2O_4 \cdot 10H_2O$, $PbC_{11}H_{11}N_2O_4 \cdot 8H_2O$.



sol. in H_2O , sol. in EtOH with difficulty, and



in H_2O and sol. in EtOH with difficulty. 1-Amino-4-cyclohexanecarboxylic acid did not enter into any typical reactions with cations.

Frank Marsh

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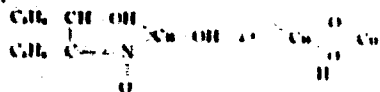
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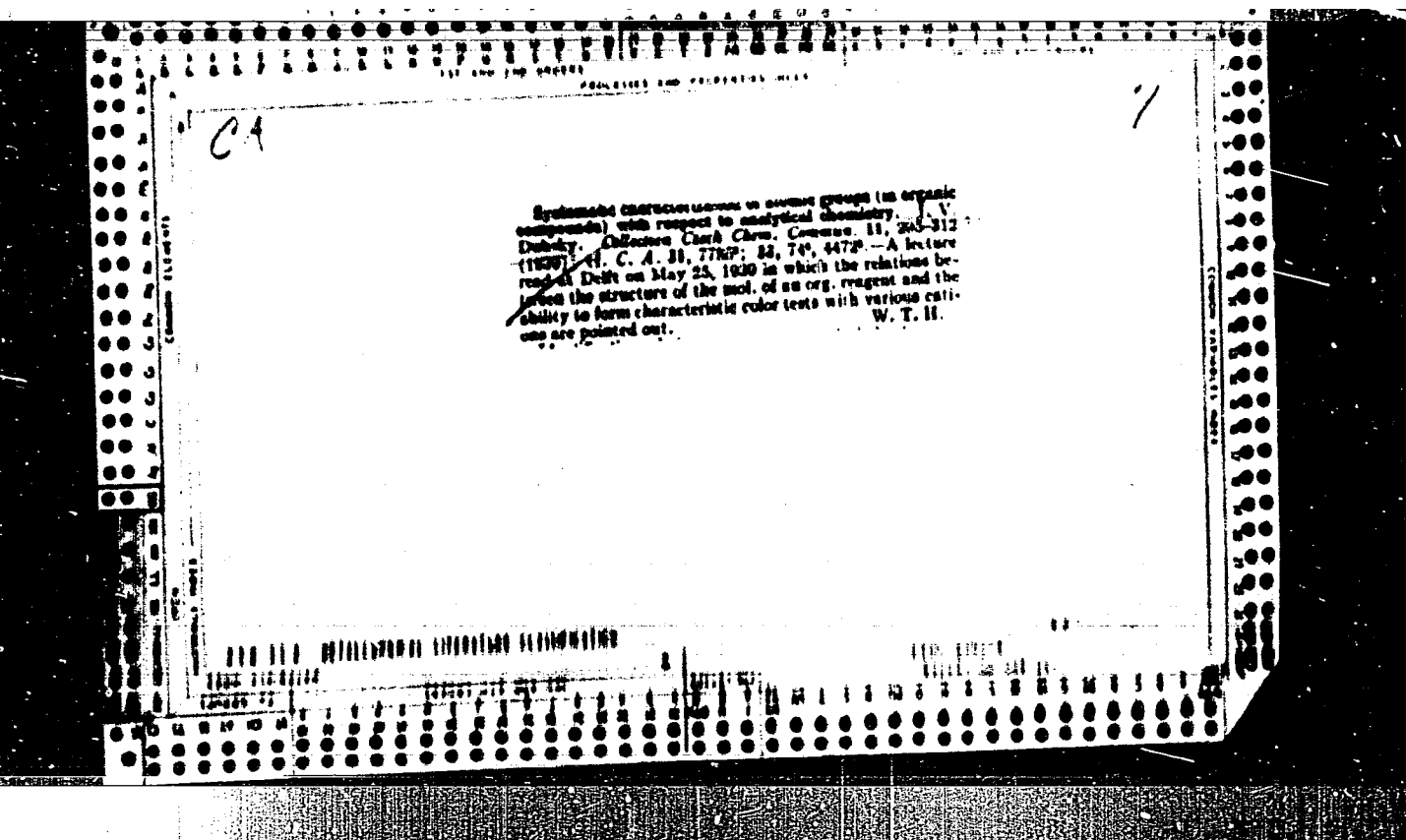
7

The systematic synthesis of atomic groupings in analytical chemistry. IV. The atomic arrangement necessary

for the specific detection of copper. J. V. Dubsky and A. Langer. Chem. Abstr. 12, 178 84, (1930) (English summary).—Frigl (C. A. 12, 30) described a sensitive test for Cu with brown urine (cuprum) and suggested a formula for the compound of the green ppt. formed. Expts. in aq. soln. in NH₄, KOH, dil. HCl, pyridine and ethylamine gave products which were analyzed for Cu, N and H₂O. From these analyses and the m. p. of the ppt. the conclusion is drawn that the ppt. is really a basic cupric salt which polymerizes readily into the corresponding diol salt.



The diol salt is not sol. in AcOH, does not add on NH₃, but does absorb NH₃ and Cu(OH)₂. Cf. C. A. 12, 16312. Frank March



Complex halogen salts of the heavy metals. II. J. V. Wagoner and A. Langer. *Collection Czechoslovakia*, 11, 641-8 (1938); cf. C. A. 31, 3408. By the action of quinoline-HBr upon the metal bromides in vacuum, HBr was the following salts were prepd.: tetra-quinonidium heptabromodisquonadibromodisquonadibromide, m. 112°, dark green crystals, insol. in H₂O, also the tetraquinonide, m. 140°, dark blue green, the corresponding tetraquinonide salt as the dihydrate, m. 165°, the tetraquinonide, m. 165° and the heptabromide, m. 71°, black crystals; pentakisquinonidium heptabromodisquonadibromodisquonadibromide, m. 93-8°, light-red needles; tetraquinonidium heptabromodisquonadibromodisquonadibromide, m. 104°, flesh-colored needles; disquinonidium heptabromodisquonadibromodisquonadibromide, m. 153°, brick-red crystals; tetraquinonidium octabromodisquonadibromodisquonadibromide, m. 101°, dark-red crystals; triquinonidium heptabromodisquonadibromodisquonadibromide, m. 92°, light-red crystals; disquinonidium heptabromodisquonadibromodisquonadibromide, m. 71°, dark green crystals; tetraquinonidium octabromodisquonadibromodisquonadibromide, m. 73°, green-green crystals; disquinonidium heptabromodisquonadibromodisquonadibromide, m. 317°, light-yellow; tetraquinonidium octabromodisquonadibromodisquonadibromide, m. 277°, light-yellow; tetraquinonidium octabromodisquonadibromodisquonadibromide, m. 173°, yellow. By the action of quinoline-HBr: disquinonidium heptabromodisquonadibromodisquonadibromide, m. 236°, pale yellow; tetraquinonidium octabromodisquonadibromodisquonadibromide, m. 257°, brick-red or grayish red.

H. N. Van Valkenburg

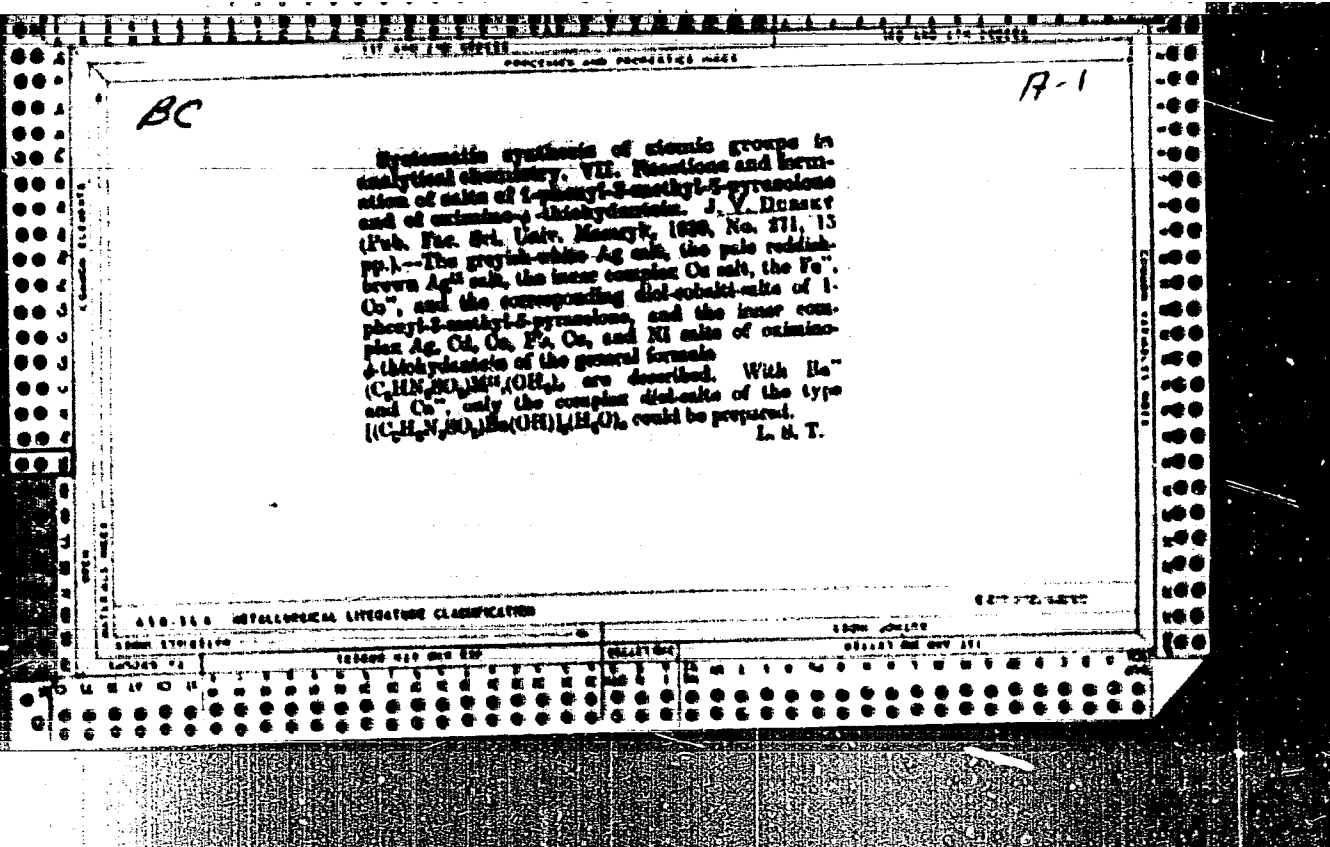
BC

Systematic synthesis of atomic groups in analytical chemistry. V. Reactions of the group $\text{NO}_2\text{NH}_2\text{C}$ with specific affinity for silver. J. V. Dumas and V. Omerin. (Pub. Fac. Sci. Univ. Marcy, 1935, No. 205, 23 pp.; cf. A., 1939, 1, 217).—Investigation of the reactions of 2-thiohydantoin and its condensation products with numerous aldehydes etc. with salts shows a selective reaction not only with Ag and Hg salts but also with those of Pb and Cu. This is attributed to the presence of the second NH. noteworthy reactions are: 2-thiohydantoin- $\text{NO}_2\text{C}_6\text{H}_4\text{NH}_2$, Ag, violet-red ppt. (0.2 mg.), Hg, red ppt. (0.4 mg.), Cu, dark-blue ppt. (0.3 mg.); 2-thiohydantoin- α -keto, $\text{C}_6\text{H}_5\text{CHO}$, Ag, red-orange ppt. (0.2 mg.), Hg, vermilion-red ppt. (0.5 mg.), Cu, carmine-red ppt. (0.2 mg.); 2-thiohydantoin- $\text{NO}_2\text{C}_6\text{H}_4\text{NH}_2$, Ag, violet ppt. (1.2 mg.), Hg, blue ppt. (0.3 mg.), Cu, blue ppt. (0.5 mg.), and Cu, black-violet ppt. (0.12 mg.). Limiting sensitivities are given in parentheses. L. S. T.

ASS-155 METALLURGICAL LITERATURE CLASSIFICATION

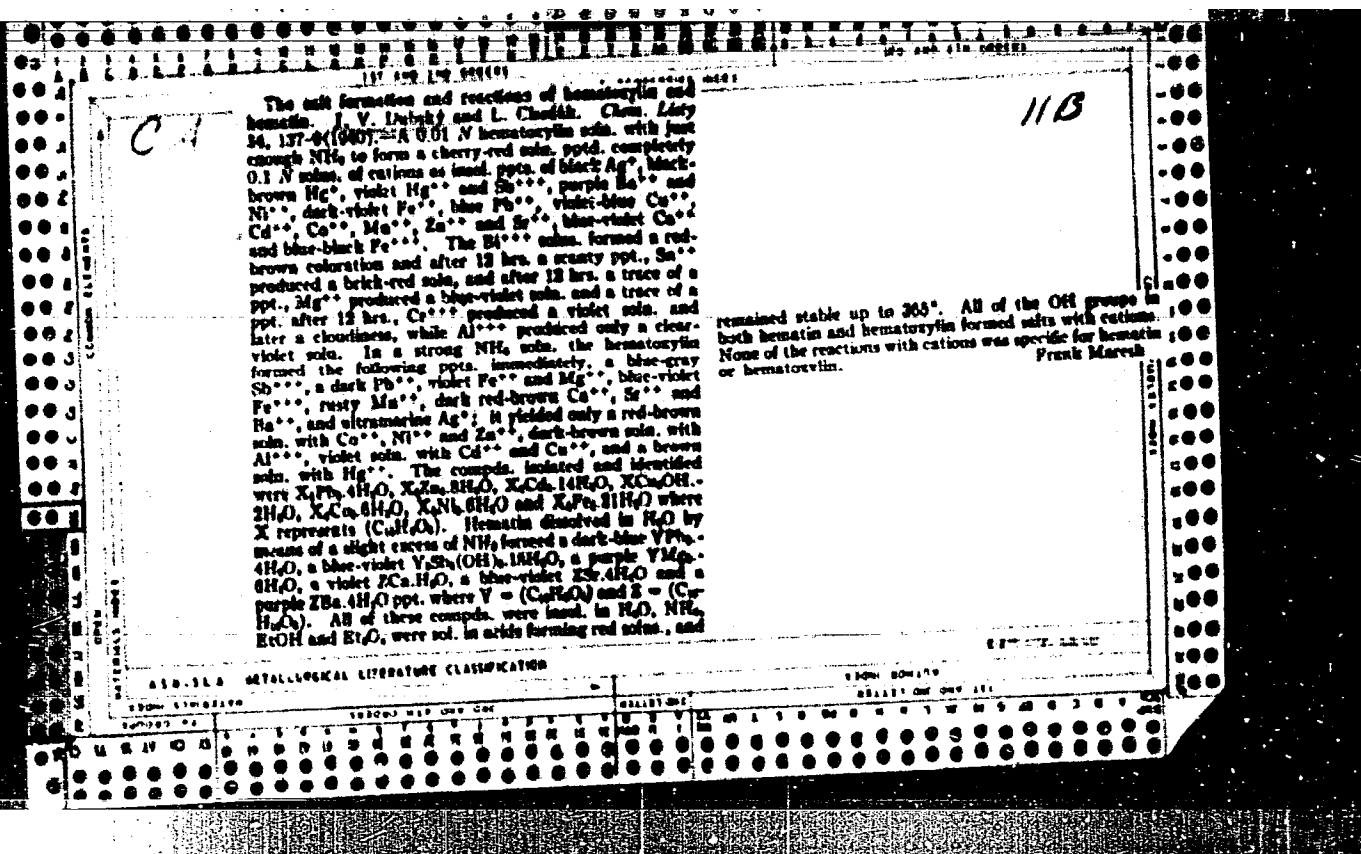
FROM DIVISION OF RESEARCH AND DEVELOPMENT, U.S. BUREAU OF MINES

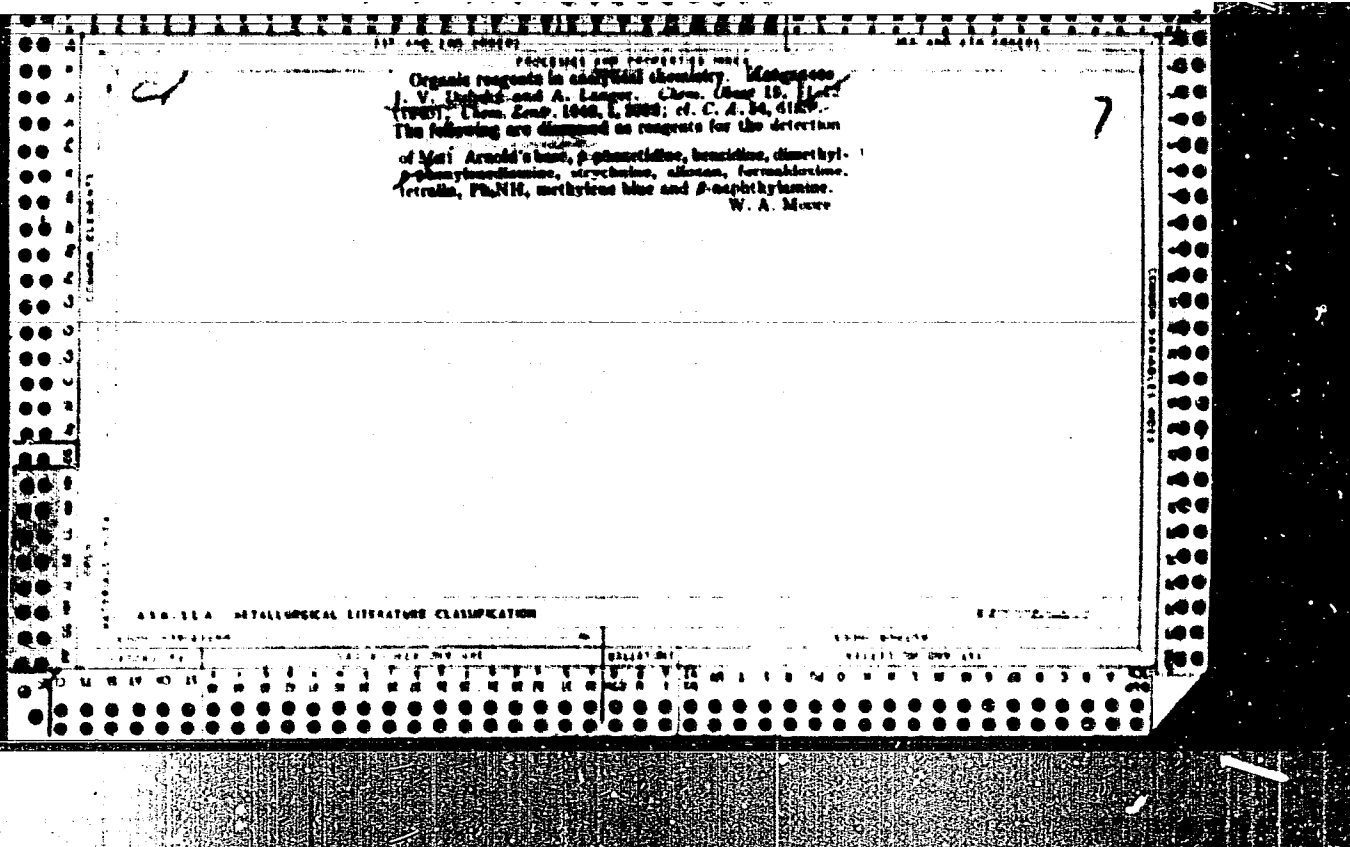
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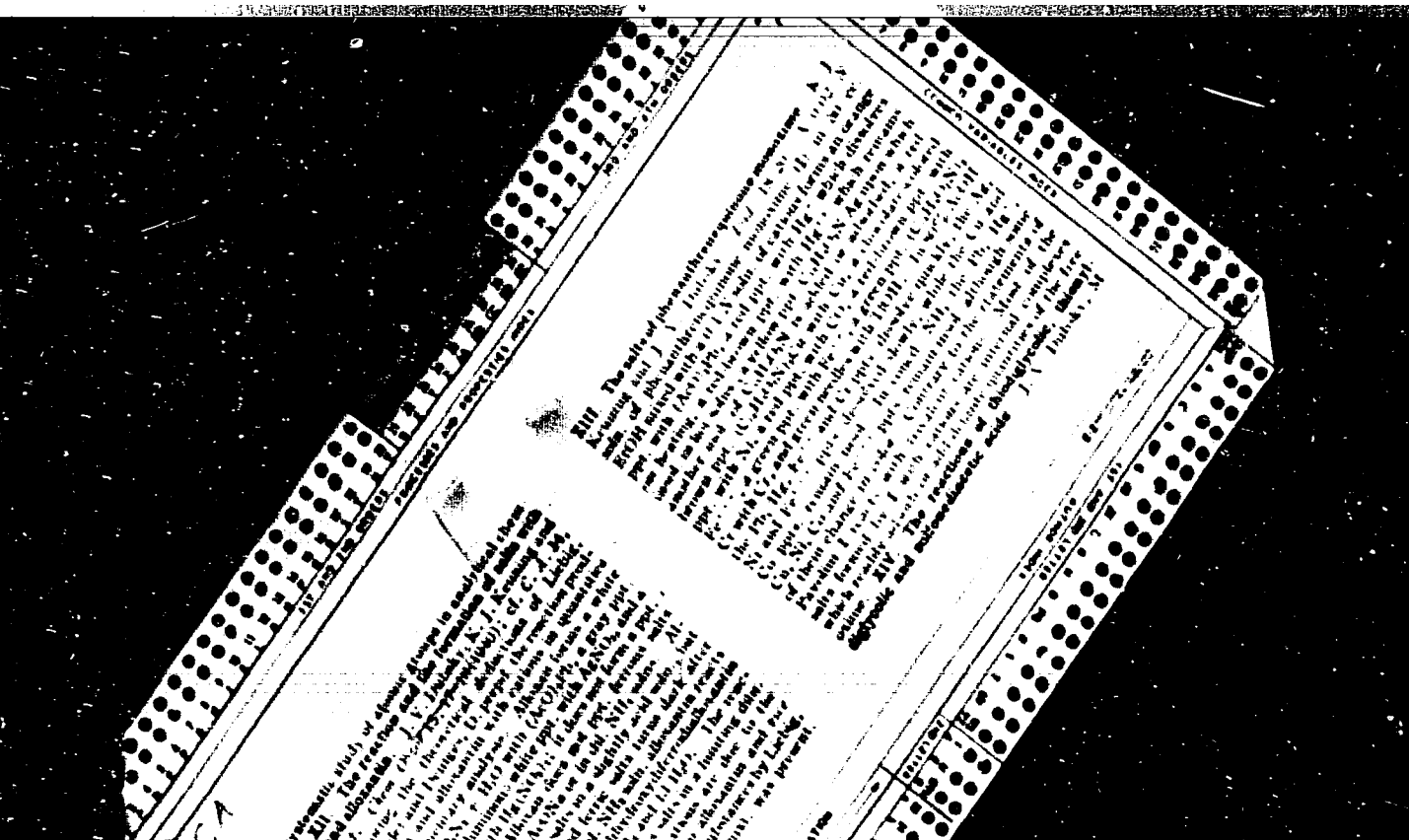


The reactions and salt formation by gallicyanine. J. V. Dubinsky, *Chem. Listy* 34, 1-2(1940).—Diacetylamino-
~~hydroxyphenylacetic acid~~ (gallicyanine) (I) forms
 red-violet salts in acids and blue-violet salts in alkalis.
 Slightly acid 0.005 N solns. of I when treated with 0.1 N
 Hg^{++} gave a pale blue ppt. on addition of
 fairly divided Hg . With conc. blue Cu, Ni, Co, Mn, Pb
 or $(C_2H_5)_4N^+ Cl^-$ was obtained but no visible
 reactions took place immediately with $Ag, Pb^{++}, Cu^{++},$
 Fe^{++} or Al . The soln. of I was disrupted by $NaCl$,
 and after 12 hrs. a brown ppt. was obtained with Ag , a
 violet ppt. with Pb^{++} , a pale blue ppt. with Ba^{++} and a
 dark blue ppt. with Ni^{++} ; other cations showed no effects.
 In the presence of strong acid, the only reactions were
 with Hg^{++} and Sb^{++} . In dil. NH_3 solns. I at once
 gave bluish violet ppts. with Hg^{++}, Ba^{++} and Mn^{++} , a pale
 blue ppt. with Hg^{++} , blue ppt. with Pb^{++}, Sb^{++} and Co^{++}
 and a dark-brown ppt. with Fe^{++} . After 12 hrs. a gray
 ppt. was obtained with Ag , a violet ppt. with Cu^{++} , a
 green ppt. with Co^{++} , a bluish violet ppt. with Ni and blue
 ppts. with Mg and Al . With Pb^{++} , the compl. C_6H_5-
 $N, N_2(OMe)_2$ was formed which dissolves in acid but is
 insol. in $H_2O, EtOH, NH_3$ and ether. It is a sp. pptg. agent
 for Sb^{++} and will detect as little as 20 γ of Sb .

Frank Marsh







A systematic study of atomic groups in analytical chemistry. XII. The reaction and the formation of salts with alloxan and alloxantin. J. V. Dubsky, K. J. Keuning and V. Smolnik. *Chem. Zvesti* 15:19-20(1960); cf. C. A. 14, 1225. Ignoring the theoretical deductions of Liebig, Wöhler, Meibler and Deming, D. purple the reaction products of alloxan and alloxantin with cations in quantities enabling in elementary analysis. Alloxan forms a white ppt. AcOH , HCl , H_2O with AcOH , Pb, a gray ppt. with AcOH , a voluminous white ppt. with AgNO_3 , and a scanty, white ppt. with $\text{Hg}(\text{NO}_3)_2$; it does not form a ppt. with other cations. Alloxan does not ppt. ferrous salts even after the addition of AcOH or in dil. NH_4 solns. Alloxan does not ppt. ferric salts in a slightly acid soln., but the soln. contg. alloxan and ferric salts turns dark after an addn. of AcOH . In a dil. NH_4 soln. alloxantin reacts with ferrous salts forming dehydratedferroalloxantin which may absorb on add. NH_4 and H_2O . The reaction is sensitive to Fe^{3+} of ferrous salts in a limiting diln. of 1:1765. Previous misinterpretations are due to the fact that alloxan can be reduced to alloxantin and vice versa, the reactions ascribed to these substances by Liebig, and others occurred only when their mixt. was present.

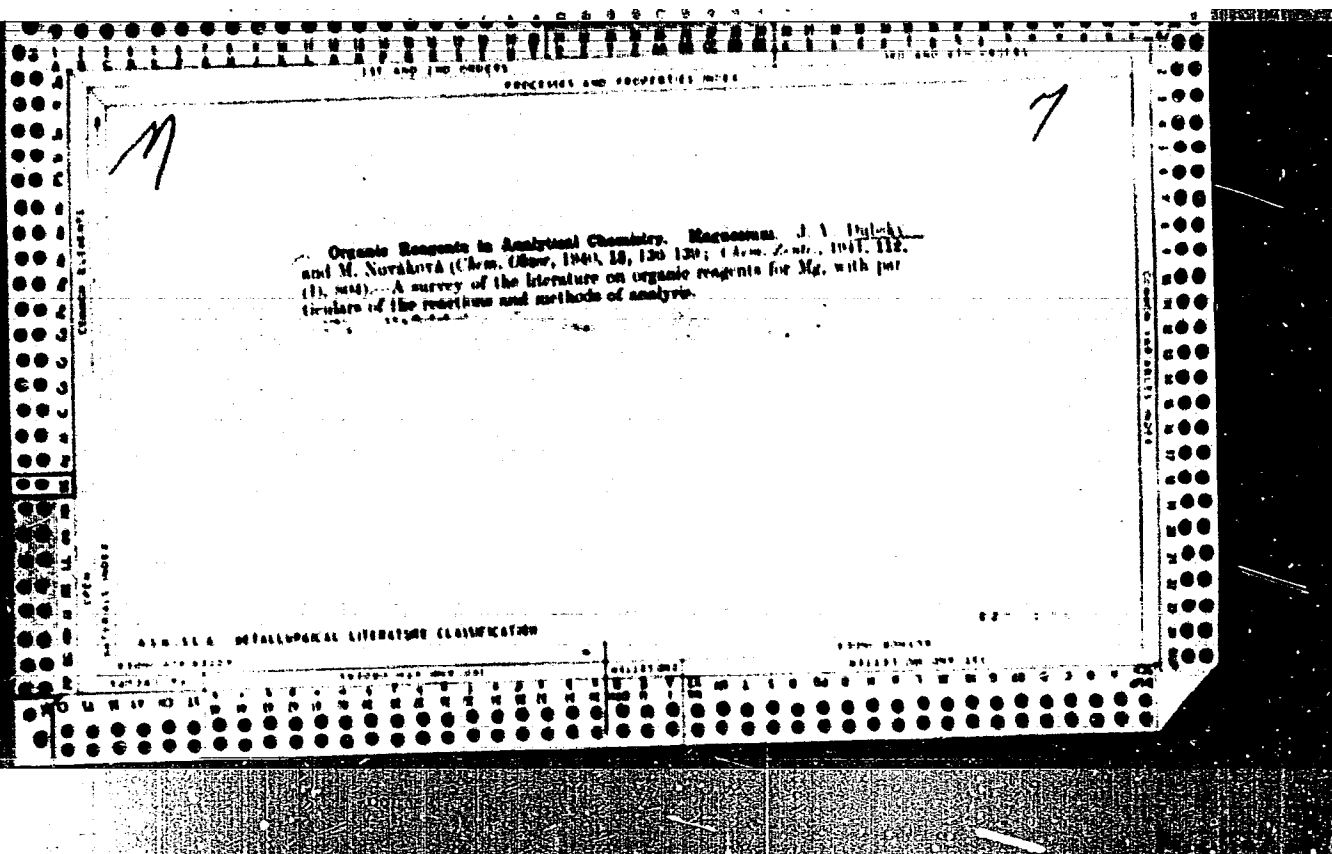
XIII. The salts of phenanthrenequinone monoxime. K. J. Keuning and J. V. Dubsky. *Chem. Zvesti* 15:21-22(1960). A 0.01 N soln. of phenanthrenequinone monoxime (I) in 50 cc. EtOH mixed with a 0.1 N soln. of cations forms an orange ppt. with AcOH , Pb, a red ppt. with Hg^{2+} which dissolves on heating, a red brown ppt. with Hg^{2+} which remains insol. in hot solns., a yellow ppt. with AgNO_3 Ag upon which another mol. of $\text{C}_6\text{H}_5\text{NH}_2$ is added or abstracted, a red-brown ppt. $\text{C}_6\text{H}_5\text{NH}_2$ with Cu, a chocolate-colored ppt. with Ni, a red ppt. with Co , a red brown ppt. with Fe^{3+} , a green ppt. with Fe^{2+} , a green ppt. $\text{C}_6\text{H}_5\text{NH}_2$ with Cr, and green needles with HCl . In 50% AcOH the Pb, Hg, Fe^{3+} and Cu ppts. dissolve quickly, the Ag, Ni and Fe^{2+} ppts. dissolved slowly, while the Cu and Co ppts. remain insol. In concd. NH_4 the Pb, Hg, Cu, Ni, Co and Fe^{3+} ppts. remain insol. although some of them change in color. Contrary to the statements of Pavolini I reacts with trivalent cations. Most of the salts formed by I with cations are internal complexes which readily absorb additional quantities of the free oxime. XIV. The reactions of thiodiglycolic, thionidiglycolic and sulfonediacetic acids. J. V. Dubsky, M.

Hedrick, A. Chad and V. Stradlet. *Ibid.* 21-2. A 0.1 N soln. of thioglycolic acid forms a white cryst. ppt. with Pb and Ag, an amorphous white ppt. with Hg⁺ and fails to produce any ppt. with other cations. Dithionite acid forms an instantaneous ppt. with Hg⁺ and Ba, cubical crystals slowly with Ag and Pb, and a white ppt. with Hg⁺; it does not ppt. other cations even after the addition of AcONa or NH₄. Thioglycolic acid forms cubical crystals of S(CH₂COO)₂·H₂O, m. 120.5-121° and of S(CH₂COO)₂·S(CH₂COO)₂·H₂O, m. 235-9°, a yellow ppt. S(CH₂COO)₂ with AgNO₃, a white ppt. with Pb, (AcO)₂ and Hg, and a chunky soln. with Ba, a dark violet ppt. m. 180-182° with Cu; it does not react with other cations. With 0.02 M CuSO₄ or (AcO)₂Cu the 0.02 M thioglycolic acid yields a blue ppt. S(CH₂COO)₂Cu m. 260° with decompos. and does not form an soln. product with NH₄; in soln. the S(CH₂COO)₂Cu decomps. with the formation of a labile yellow cuprous salt which later becomes a stable dark-violet cupro-cuprous salt. None of the S acids forms internal complexes with cations.

Frank March

Organic Reagents

Organic Reagents in Analytical Chemistry (Aluminum, Zinc, Chromium).
J. V. Iul'inskiy and V. G. Gaiduk (Chem. Abstr., 1965, 10, 34-36; Chem. Zvest.
1965, VII, (11), 1183).--A compilation of the organic reagents recommended
in the literature for the detection or determination of Al, Zn, and Cr, with
particulars of the reactions and of the methods of analysis.



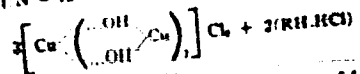
Systematic development of stannic groups in analytical chemistry. XI. Stannous chloride. *Abstract. Modern Chem. 19, 145-72 (1941), cf. C. A. 34, 1219.* The significance of internal complex salts for analytical chemistry is pointed out. For the formation of such salts, the presence of salt-forming groups such as OH, SH, NH, NOH, COOH, C=O, SO₂, SO₃H, and SO₃Na is necessary as well as the complex-forming groups Cu, CS, N₂, NH₂, NOH, NO, and NH. Reactions with dichloroacetic acid, trichloroacetic acid, iodoacetic acid, iodoacetic acid, 1-phenyl-3-methyl-5-pyrazolylisourea, 2-mercaptoethylisourea and 2-mercaptoethylisourea are discussed. The effect of substitution in the group with respect to glycosyl, phenylglycosyl, nitrophenylglycosyl and 1-amino-4-nitrophenylglycosyl. No new analytical data are given. W T II.

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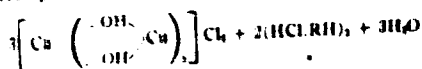
Formation of salts of dicyanodiamide. J. V. Dutkay and M. Struhal. Chem. Zvest. 17, 60-77 (1962). Chem. Zvest. 1964, 1, 30-1. A theoretical discussion is given of the complex Cu salts of isocyanodiamide (R and biquanidine) and of the effect of acids upon the inner complex. Cu and Ni salts of R, $CuR_2 \cdot 2H_2O$ (II), pale rose results from 10 g. $CuSO_4$ and 13.53 g. $R \cdot H_2SO_4$ in H_2O and made alk. to phenolphthalein with $NaOH$; the I is washed free from alkali with H_2O . I (3 g.), added to 20 cc. cold 2 N HCl , quickly gives a blue-green soln. which, after filtration and standing several days, gives $CuR_2 \cdot 2H_2O$ (II), transparent, light blue, m. 110° (decomps. 108°); at 60° the color becomes green and at 90° yellow-green to yellow. II also results by dissolving 3 g. of I in 40 cc. N HCl ; the green-blue soln. on standing 64 hrs. gives II; recrystn. from H_2O gives the dihydrate, blue-green (light blue when pulverized), m. 110°. I (3 g.) in 60 cc. 2 N HCl gives a greenish blue soln.; on standing several days, it gives light blue crystals of $CuR_2 \cdot HCl \cdot 2H_2O$ (not clear from abstract whether this is I or HCl); on standing 3 days, transparent green-blue crystals of the same compn. mp., decomps. 100°, m. 110-112°. N HCl same compn. mp., and 8.33 g. $CuCl_2$ ground together and (III) (14.75 g.) and 8.33 g. $CuCl_2$ ground together and treated with 20 cc. concd. HCl and 20 cc. H_2O , give an olive-green soln.; after 24 hrs. pale green and yellow-green crystals of $CuCl_2 \cdot 2H_2O$ + 2 mols. of $RH \cdot HClO_3 \cdot H_2O$ are formed; after 2 days the salt which seps. is

10

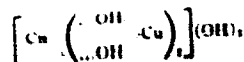
$[CuCl_2]_2(RH)_2 \cdot 2H_2O$, green, decomps. 230° after an addnl. 2 days the same green salt with 2.5 mols. H_2O seps., which becomes yellow green at 70°, greenish yellow at 85°, brownish yellow at 100°, decomps. 108°, m. 110°. 17.37 g. and 8.33 g. $CuCl_2$ in 20 cc. concd. HCl and 20 cc. H_2O and the dark green soln. filtered at 60-80° give after 5 days 3 fractions. $CuR_2 \cdot 2H_2O$ (yellow green, decomps. 230°). I (3 g.) in 20 cc. 2 N HCl , treated with 10 cc. 2 N KOH and neutralized with 10 cc. 2 N HCl , gives the violet salt $CuR_2 \cdot HCl \cdot 2KOH$. The salt $CuR_2 \cdot HCl$ (violet salt $CuR_2 \cdot HCl \cdot 2KOH$) begins to decomp. at 120°, becomes gray violet at 130°, in hot H_2O , 138° and m. 139 (10°). $R \cdot H_2SO_4$ (3.5 g.) in hot H_2O , treated with freshly prepd. $Cu(OH)_2$, gives after 14 days the violet salt of III and $Cu(OH)_2$, m. 137°. I (0.6 g.) and 1 cc. 2 N HCl give the violet $CuR_2 \cdot HCl \cdot 2H_2O$, m. 139-40°. Free R and aq. $CuCl_2$ give only the inner salt $3[Cu(OH)_2] \cdot CuCl_2 \cdot 2H_2O$, decomps. 187°. R (0.6 g.) in 2 cc. 2 N HCl gives a ppt. of dry-blue $Cu(OH)_2 \cdot CuCl_2 \cdot 2H_2O$, which decomps. at 185°. If the soln. is poured into 20 cc. H_2O , it yields a pale green product, which may be $CuR_2 \cdot 2HCl \cdot H_2O$ or a mixt. of 3 mols. of the basic hexad salt and 2 mols. of $RH \cdot HCl$ (ratio of $Cu:Cl:N = 12:8:8$) of the formula



R (1.02 g) in 10 cc. EtOH and 1.7 g. CuCl_2 in 10 cc. EtOH, on being mixed, give a pale green ppt. which decomps. about 200° and is probably



The mother liquor, on diln. with H_2O , gives a dark green compl. decomps. about 300° of the formula



I (10.0 g) in 1.168 cc. 40% HBr gives a carmine-brown soln. which yields after several days granitic-brown crystals (golden-brown powder) of $[\text{CuBr}_2] \cdot \text{H}_2\text{RH} \cdot \text{H}_2\text{O}$, easily sol. in H_2O , decomps. at 120° ; in a mol. ratio of 1:1 there results a violet ppt., $(\text{CuR}_2)_2 \cdot 2\text{H}_2\text{O}$, easily sol. in mineral acids but difficultly sol. in H_2O , fuses at 182° . The compl. $\text{CuR}_2 \cdot \text{H}_2\text{O}$ is violet-black, difficultly sol. in H_2O , decomps. at 190° . The compl. $\text{CuR}_2 \cdot \text{H}_2\text{SO}_4$ is violet, mod. in H_2O , which becomes grayish green at 230° and shows no change at a higher temp.; the pentahydrate was prepd. also. The compl. $\text{CuR}_2 \cdot 2\text{HNO}_3$ is grayish blue, difficultly sol. in H_2O , decomps. at 250° ; $\text{CuR}_2 \cdot \text{HNO}_3$ is light violet, H_2O , decomps. at 250° ; the latter forms a monohydrate. I (0.3 g) in 2 cc. 1 N HNO_3 gives a greenish blue soln. which with 1 cc. 2 N KOH gives the compl. $\text{CuR}_2 \cdot 4\text{HNO}_3$, 2KOH, grayish violet, difficultly sol. in H_2O , decomps. at 250° . A mixt. of 2.41 g. $\text{Cu}(\text{NO}_3)_2$ and 1.65 g. $\text{RH} \cdot \text{HNO}_3$ in 2 cc. concd. HNO_3 (blue soln.), treated with NH₃ until the color is ultramarine, gives as the 1st fraction a mixt. of white and ultramarine crystals and in the 2nd fraction blue scales, which turn a dirty blue at 120° and decomp.

about 300° ; the ratio of Cu:N is 1:11 but the compl. of the salt was not established. $\text{Cu}(\text{NO}_3)_2$ (12.8 g.) and 8.3 g. $\text{RH} \cdot \text{HNO}_3$ in 20 cc. H_2O , treated with NH₃ until a sky-blue ppt. app., give a product with a Cu:N ratio of 1:4; it turns green at 220° and then decomps. The salt $\text{CuR}_2 \cdot \text{HNO}_3 \cdot \text{H}_2\text{O}$, violet, decomps. at 172° , was prepd. from $\text{RH} \cdot \text{HNO}_3$ (from the acid sulfate of R and $\text{Ba}(\text{NO}_3)_2$) and $\text{Cu}(\text{OH})_2$; the 1st fraction is a mixt. with $\text{CuR}_2 \cdot 2\text{HNO}_3$. III (2.94 g.) and 23.7 g. NiCl_2 in a little H_2O , made alk. with NaOH, give a yellow ppt. of $\text{NiR}_2 \cdot \text{H}_2\text{O}$ (IV), which turns dark yellow at 110° , is mod. in H_2O and rather stable toward alkali. IV (3 g.) in 20 cc. 1 N HCl probably give III, 0.6 g. IV in 4 cc. 2 N HCl.

I treated with 2 cc. of 2 N KOH, gives unchanged IV. $\text{NiR}_2 \cdot 4\text{HCl} \cdot 2\text{H}_2\text{O}$ is yellow-green, decomps. 155° . III (30 g.) and 23.7 g. NiCl_2 treated with 20 cc. concd. HCl and 10 cc. H_2O , give the yellow $[\text{NiCl}_2] \cdot 2\text{RH} \cdot \text{H}_2\text{O}$, the dihydrate is decomps. at 100° , easily sol. in H_2O , the dihydrate is yellow and darkens at 100° . III and $\text{Ni}(\text{OH})_2$ give as $[\text{NiCl}_2] \cdot 2\text{RH} \cdot 2\text{H}_2\text{O}$. $2\text{HNO}_3 \cdot \text{RH}$ and $\text{Ni}(\text{OH})_2$ give as the 1st fraction the orange-yellow $\text{NiR}_2 \cdot 2\text{HNO}_3 \cdot 2\text{H}_2\text{O}$, the 2nd fraction is the orange $\text{NiCl}_2 \cdot \text{NiR}_2 \cdot \text{H}_2\text{O}$, decomps. 240° , difficultly sol. in H_2O ; the 3rd and 4th fractions are similar and are believed to be the Ni salt of nitrosylvanadamine.

C. J. West

P.A.

Zinc and cadmium salt addition products with 2-picoline.
J. V. Dubinsky and J. Rittmeyer, Chem. Listy 44, 217-9
(1946).—The chlorides, bromides, iodides, and thiocyanates of Zn and Cd form addn. compds. with 2-picoline. From the analytical point of view these compds. are less stable than the corresponding compds. of $C_{10}H_7N$, and therefore less suitable for detn. of Zn and Cd. Addn. compds. of Zn and Cd halides with 2-picoline-HCl of the type $ZnX_2 \cdot \text{picoline} \cdot HX$ have also been prepd. They are easily sol. in water and slightly sol. in EtOH and Et₂O.

M. Heilbrunn

C.A.

Comparison of the reactions of sulfoximide and sulfoxide
thioamide. J. V. Dubsky and M. Polster. *Chem. Listy*
46, 200-10 (1948). The different behaviors toward the fol-
lowing cations were established: Cu(II), Cd, Fe(III),
Ni(II), and Co(II). M. Hudlicky

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The conversion of *N*-salicylidene oxime salts to salicyl-
phenylamine salts in ammoniacal medium. J. V. Dubsky, A.
Ottel, and J. Pech. *Chem. Listy* 40, 210-II (1946). — By
the action of aq. NH_3 , the Cu and Ni salts of $\text{o-HOC}_6\text{H}_4\text{-CH:NHPh}$
are transformed to the salts of $\text{o-HOC}_6\text{H}_4\text{-CH:NH}_2$. The change is complete and is accelerated by
heat. Fe⁺⁺, Fe⁺⁺⁺, and Cr give similar salts. M. Hadlich

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F 2636. UTILIZATION OF NATURAL GAS IN (CZECHOSLOVAK) GAS INDUSTRY.
 Odehnal, S. and Dubsky, J. (Fuel), 1950, vol. 30,
 (4), 67-71). Utilization has increased rapidly in recent years.
 Addition of methane to a mixture of gas from coal carbonisation
 plants and water gas may give rise to thermal reactions.
 There have been trials on a commercial scale of reforming
 methane by means of oxygen, and also of cracking it with
 steam in vertical chambers filled with red hot coke. Further
 commercial scale trials in preparation are: cracking with
 steam in water gas plants and catalytic reforming with steam.
 Cracking of natural gas in vertical Glover West resorts
 is actually being carried out on a large scale. The use of
 a mixture of methane and air has been abandoned for the time
 being. Pure natural gas will be supplied in new works and
 towns now being built and will be burned in special appliances.
 (L)

2344. REFORMING OF NATURAL GAS IN GLOVER-WEST RETORTS. Dubsky, J. and Pavlik, V. (Paliva (Fuel), 1950, vol. 30, 214-216; abstr. in Chem. Abstr., 1950, vol. 44, 11062).

Reforming of natural South Moravian gas was attempted to supplement the dwindling supply due to increased consumption of city gas. The reforming was done on a large experimental scale with steam over hot anthracite in Glover-West retorts at 1180-1250° and 1200-1230°. It was aimed to increase the hydrogen content of natural gas from 0-1% in natural gas to approximately 50% and reduce the calorific value from 9000-10,200 to 3000 k.cal./cu.m. The produced gas was mixed with carburetted gas, city, gas, and natural gas to increase its calorific value to 5200-5250 cal. and reduce the hydrogen to 33-36%. Unassorted coke from city gas manufacture and regular Ostrava coke for steel were used. The natural gas obtained at the source was sulphur free, occasionally contained light hydrocarbons and had 100-100 atm. pressure. The pressure was reduced to 2-3 atm. and for this test to 350-450 m.m. These processes require less lower and coke, but the overall cost is higher.

owing to higher temperatures, refractory material is damaged, the coke is hard and has sharp edges, water consumption is 1/3 higher, no ammonia or other by-products are obtained, the coke devaluates by 5%, and general health of personnel due to seepage of gas is a definite hazard.
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Characteristics of fuel gases. Jurek, J. *Polish*. *Polish*
31, 104-11(1961).—A review of the chem., phys., and com-
bustion properties of gases from coke ovens, brown and
black coal decompos., gas generators, of natural, liquefied
and synthetic gases, and of the pure components found in
these gases. . . . James L. Jell

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1. The first of the two main points of the report is that the United States has a major role to play in the development of the world. The second point is that the United States has a major role to play in the development of the world.

DUBSKY, J.

"Gas Producers." (To be contd.) p. 200 "Professor R. Riedl's Fiftieth Birthday." p. 204
(PALIVA, Vol. 33, No. 9, Sept. 1953) Praha, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4,
April 1954. Unclassified.

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"Gas Producers." p. 249. (Paliva.
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Vol. 3, No. 3.
SO: Monthly List of East European Accessions, Library of Congress, March 1954, Uncl.

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CZECHOSLOVAKIA/Chemical Technology - Chemical Products and I-12
Their Application. Treatment of solid mineral fuels.

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12834

Author : Dubsky J.

Title : West Moravian Gas Plants

Orig Pub : Ze zapadomoravskych plynaren. Paliva, 1955, 35, No 5,
152-154 (Czech)

Abstract : Data are presented concerning the development in the
output of West Moravian gas and coke and chemical plants,
in particular of the plant at Brno. Noted are the tech-
nological improvements that have been put into practice
and especially the development of cracking of natural
gas.

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